

THE JOURNAL OF
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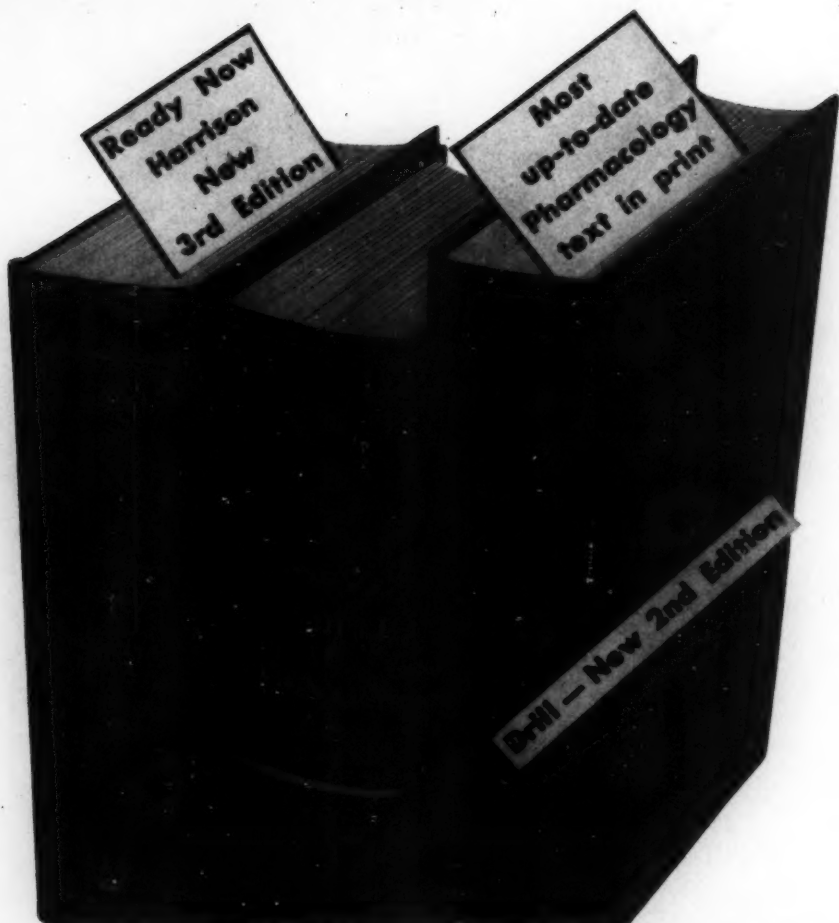
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The Journal of Medical Education serves as an important international medium for the exchange of ideas in medical education, as well as a means of communicating the policies, programs, and problems of the Association. The Editorial Board welcomes the submission of manuscripts concerned with the broad field of medical education; this includes preparation for medical education; the medical school experience; intern and resident education; graduate and postgraduate medical education. The Editorial Board recognizes that medical education includes the activities of faculty, students, administrators, and those of the practicing profession who also teach and learn. Thus, it invites communications from any of these sources.

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Medical Education Forum includes editorials, letters, comments, criticisms, and excerpts from important addresses.

News from the Medical Schools: Material for this section should be transmitted to the News Editor, Mr. Tom Coleman, 2530 Ridge Avenue, Evanston, Illinois. Announcements of major faculty and administrative appointments, news of distinguished visitors and significant educational developments will be included. It is not possible to publish notices on grants-in-aid for scientific research.

Items of Current Interest: Audio-visual news and notices from national and federal agencies appear in this section.

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<p>SWENSON'S PEDIATRIC SURGERY</p> <p>(New Book—June 1958)</p>	<p>By Orvar Swenson, M.D. (Tufts University School of Medicine)</p> <p>In this new text an outstanding pediatric surgeon covers all aspects of congenital, traumatic and acquired surgical problems which will be encountered in the newborn, the infant and the child. Techniques are detailed and fully illustrated. General surgical management includes preoperative and postoperative care and the care of complications. The Foreword is by William E. Ladd, M.D.</p> <p>750 Pages • 702 illus. • June 1958 • \$20.00</p>
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Calendar of Meetings

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

69th Annual Meeting, October 13-15
The Sheraton Hotel, Philadelphia, Pa.

AUGUST

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION, Philadelphia, Bellevue-Stratford Hotel, Aug. 24-29. Dr. Frances Baker, 1 Tilton Ave., San Mateo, Calif., Secretary.

AMERICAN HOSPITAL ASSOCIATION, Palmer House, Chicago, Aug. 18-21. Dr. Edwin L. Crosby, 18 E. Division St., Chicago 10, Director.

CHEMICAL ORGANIZATION OF CELLS, NORMAL AND ABNORMAL, Madison, Wis., Aug. 21-23. Dr. J. F. A. McManus, Univ. of Alabama Medical Center, Birmingham, Ala., Chairman.

SEPTEMBER

AMERICAN ACADEMY FOR CEREBRAL PALSY, Sheraton-Biltmore Hotel, Providence, R.I., Sept. 25-27. Dr. Raymond R. Rembolt, University Hospitals, Iowa City, Ia., Secretary.

AMERICAN FRACTURE ASSOCIATION, Skirvin Hotel, Oklahoma City, Okla., Sept. 29-Oct. 4. Dr. H. W. Wellmerling, 610 Grisham Bldg., Bloomington, Ill., Secretary.

AMERICAN MEDICAL WRITERS' ASSOCIATION, Hotel Morrison, Chicago, Sept. 26-27. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

AMERICAN ROENTGEN RAY SOCIETY, Shoreham Hotel, Washington, D.C., Sept. 27-Oct. 3. Dr. C. Allen Good, 200, 1st St. S.W., Rochester, Minn., Secretary.

UNITED STATES SECTION, INTERNATIONAL COLLEGE OF SURGEONS, Atlantic City, N.J., Sept. 7-11. Dr. Karl Meyer, 1835 W. Harrison, Chicago, Secretary.

OCTOBER

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Statler Hotel, Boston, Oct. 13-14. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

AMERICAN ASSOCIATION OF PUBLIC HEALTH PHYSICIANS, St. Louis, Oct. 27-31. Dr. Joseph M. Bistowish, P.O. Box 1117, Tallahassee, Fla., Secretary.

AMERICAN COLLEGE OF SURGEONS, Oct. 6-10. Dr. Michael L. Mason, 40 E. Erie St., Chicago, Secretary.

AMERICAN HEART ASSOCIATION, Fairmont Hotel, San Francisco, Oct. 24-28. Mr. John D. Brundage, 44 E. 23d St., New York 10, Secretary.

AMERICAN PUBLIC HEALTH ASSOCIATION, Kiel Auditorium, St. Louis, Oct. 27-31. Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Secretary.

AMERICAN SCHOOL HEALTH ASSOCIATION, St. Louis, Oct. 26-31. Dr. A. O. DeWeese, 515 E. Main St., Kent, Ohio, Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Dallas, Tex., Oct. 26-31. Miss Rose M. Reynolds, 47d & Dewey Ave., Omaha 5, Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Oct. 31-Nov. 1. Dr. Austin S. Weisberger, 2065 Adelbert Rd., Cleveland 6, Secretary.

PUERTO RICO MEDICAL ASSOCIATION, Santurce, P.R., Nov. 18-22. Mr. J. A. Sanchez, Box 9111, Santurce 29, P.R., Executive Secretary.

NOVEMBER

AMERICAN ASSOCIATION OF BLOOD BANKS, Netherlands Plaza Hotel, Cincinnati, Nov. 20-22. Dr. John B. Alsever, 1211 W. Washington, Phoenix, Ariz., Secretary.

ASSOCIATION OF MILITARY SURGEONS OF THE U.S., Hotel Statler, Washington, D.C., Nov. 17-19. Col. Robert E. Bitner, 1726 Eye St., N.W., Washington 6, D.C., Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Congress Hotel, Chicago, Nov. 1-5. Dr. A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1, Executive Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, Cleveland, Nov. 10-13. Dr. Erwin R. Schmidt, Box 1109, Madison 1, Wis., Secretary.

NATIONAL SOCIETY FOR Crippled Children & Adults, Statler Hilton Hotel, Dallas, Tex., Nov. 16-20. Miss Catharine Bauer, 11 S. LaSalle St., Chicago 3, Director of Information.

NEW ENGLAND POSTGRADUATE ASSEMBLY, Statler Hotel, Boston, Nov. 4-6. Mr. Robert S. Boyd, Massachusetts Medical Society, 22 The Fenway, Boston 15, Executive Secretary.

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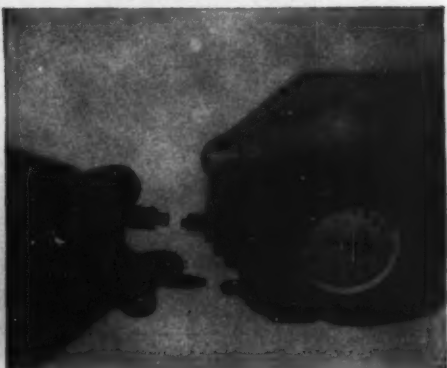


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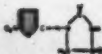
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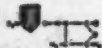
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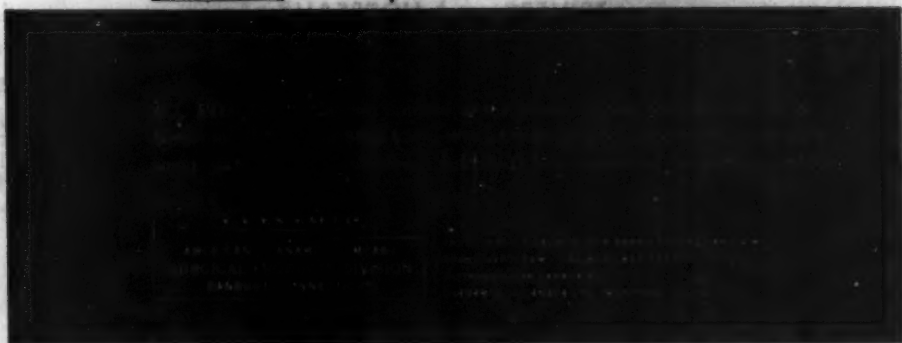
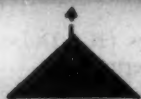
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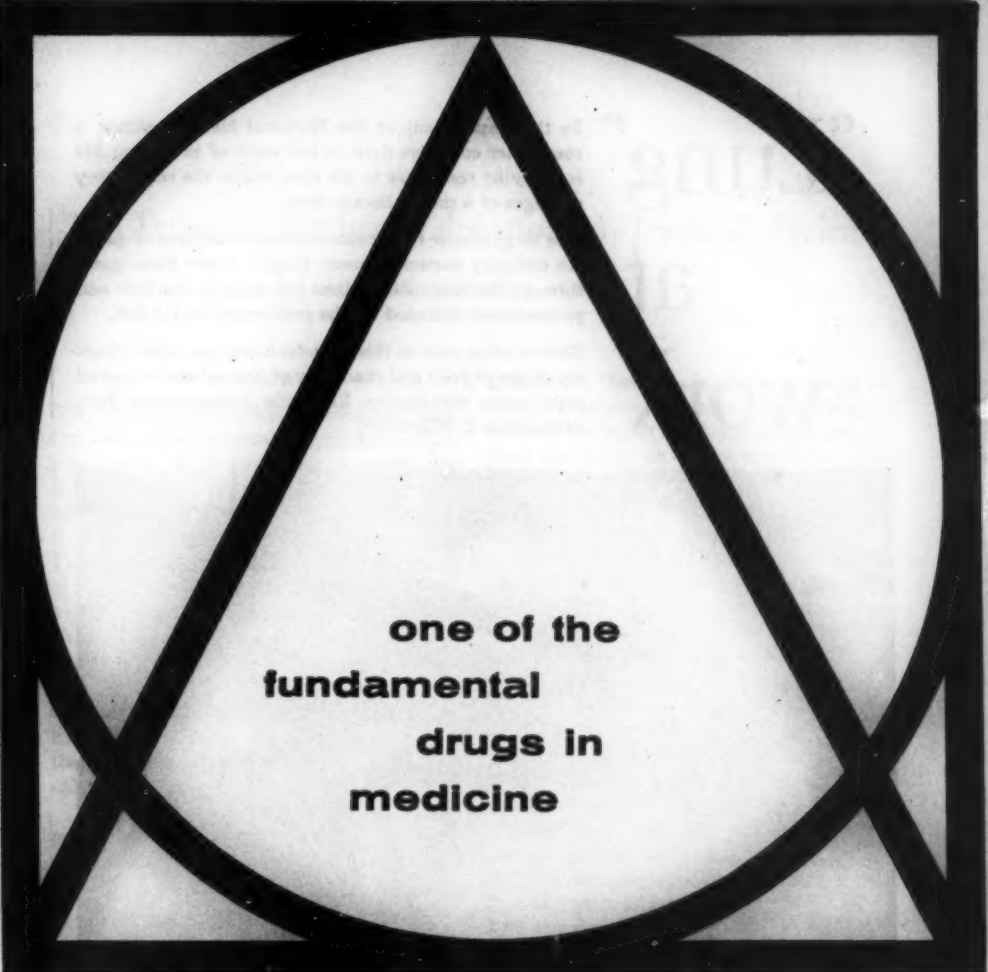
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FIRST IN A SERIES. THERAPEUTIC DIRECTION THROUGH BASIC RESEARCH

 LAKESIDE

The Dawn of Medical Education in Tropical Africa*

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Camp Hill, Pennsylvania

INTRODUCTION

The following discussion is concerned with the training of modern physicians in the great area of Africa lying between the Sahara Desert and the Union of South Africa. This is roughly the part of the continent between the Tropic of Cancer and the Tropic of Capricorn. The land to the north of the Sahara supports a different people with a different civilization, as also does the Union to the south. Between the two Tropics, more than 150,000,000 people are developing very rapidly in the world of today—socially, economically, industrially, and politically. The world is beginning to realize the importance of what is here called "Tropical Africa" (Chart 1).

The training of physicians for these people is a matter of serious concern. Some of their medical schools are well advanced, but, on the scale of time and of need, the day of medical education is only dawning.

The diseases which prey upon the African are many and serious. We think at once of the special infections—sleeping sickness, schistosomiasis, relapsing fever, yellow fever, leprosy, yaws and malaria, typhus of various kinds, infection with ankylostome and ascaris; and of the familiar—smallpox, tuberculosis, poliomyelitis, syphilis, typhoid and the dysenteries, cerebrospinal meningitis, anthrax, rabies, and whooping cough. Growing industrialization brings silicosis, accidents, and still more pneumonia. Nutritional deficiencies are serious, especially the protein shortage, kwashiorkor. Infant mortality

is high. All these are in addition to the ordinary ills of man. The sum total is a mass of sickness and misery that is probably heavier than lies today on a like population anywhere else.

Western medicine has done a great deal for Africa. One after another, research has attacked and solved the mystery of many of her strange killers, their causes and their transmissions. New drugs have been found, to cure or to prevent.

Africa must have its own schools.—At that, we are only in the beginning. Many discoveries wait to be made, others to be applied. Today the Congo counts one modern physician to 23,000 people; Nigeria, 1 to 59,000; Ethiopia, 1 to 165,000. All the physicians and their helpers that Europe, America, and India can pour into Africa today from outside are sadly inadequate. With effort, we may double their numbers, but we cannot expect to multiply them by 1,000, or 100, or even by 20.

In the long run, the ills of Africa must be treated by Africans themselves. There must be auxiliaries and helpers of various kinds, but the leaders must be physicians, and they must be well trained. The problems they face are immense, and African pride will not be content with less than the best by Western standards.

The development of healing professions in any underdeveloped country follows a fairly well worn course. The physician from abroad begins by training his own helpers: people who can take temperatures, do dressings, make simpler laboratory tests, help at operations. As primary and secondary schools develop, courses are set up for medical assistants, practical nurses, technicians,

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† Director of professional training, Pennsylvania State Department of Health.

pharmacists. A few brighter boys are sent back to the home country for a course in medicine. Regular schools of nursing appear and gradually meet international standards.

Then, people find, medical schools back home are crowded. It is hard for room to be found for increasing numbers of students. Education abroad is expensive and does not deal with African conditions. Africans are entitled to their own medical schools, and one by one these appear.

The Committee on Information from Non-Self Governing Territories reported to

UN in 1955 that "In principle, the Committee feels that no health service is complete without a faculty of medicine provided territorially or regionally. A faculty of medicine, a training or teaching hospital, a cadre of locally qualified doctors are well worth the money expended."

A medical school develops when conditions favor.—Modern medical education can be expected to take root and to mature in a locality in Tropical Africa under a certain set of conditions: The country must be developing, fairly rapidly, in many phases of its life,

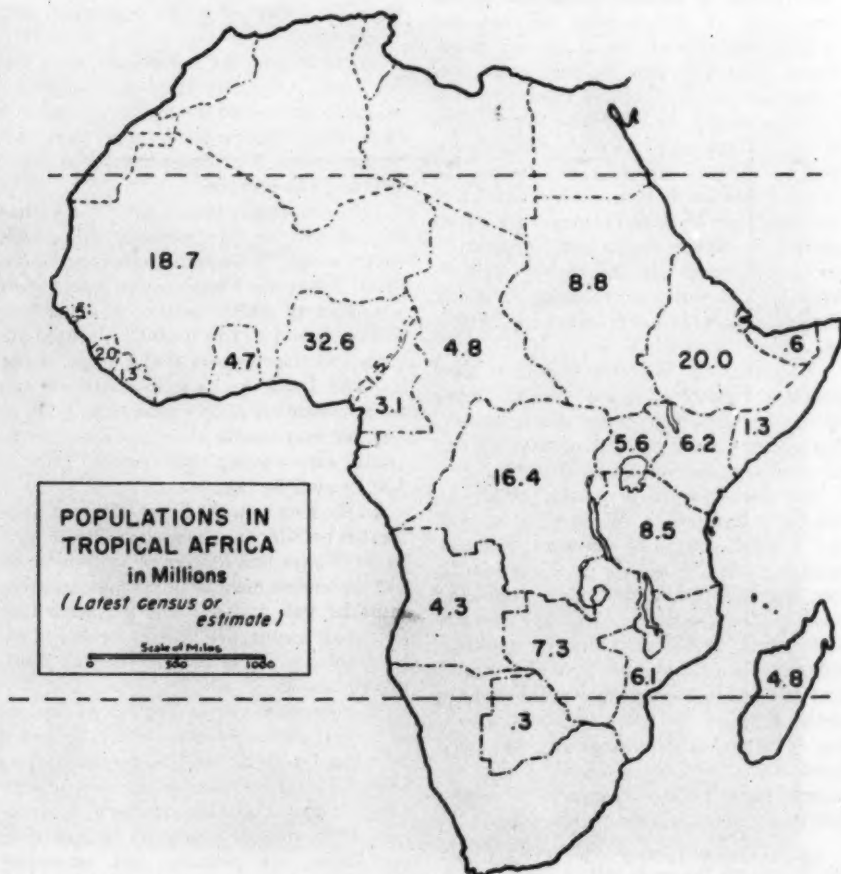


CHART 1.—Populations in Tropical Africa

especially in the elementary and secondary schools, since graduates are snapped up so quickly. When all the secondary schools in an area together graduate only 100 boys a year, to go on to higher schools which train teachers, engineers, government clerks, business people, the number who might enter medicine will hardly support a medical school. Instead, a promising student is sent to Edinburgh, Paris, Alexandria, or Beirut, and his country waits for the base of the local educational pyramid to be broadened.

The secondary education is also in a Western language, taught over a considerable area. As Chart 2 shows, a student from Northern Rhodesia, trained in English, can be sent to distant Durban, but hardly to nearby Elizabethville, where teaching is in French. Yet the medical school in Elizabethville can serve a wide area of the Congo and possibly Portuguese territory too.

Medical education calls further for a substantial tax structure, and this in turn depends upon a developed economy. Medical

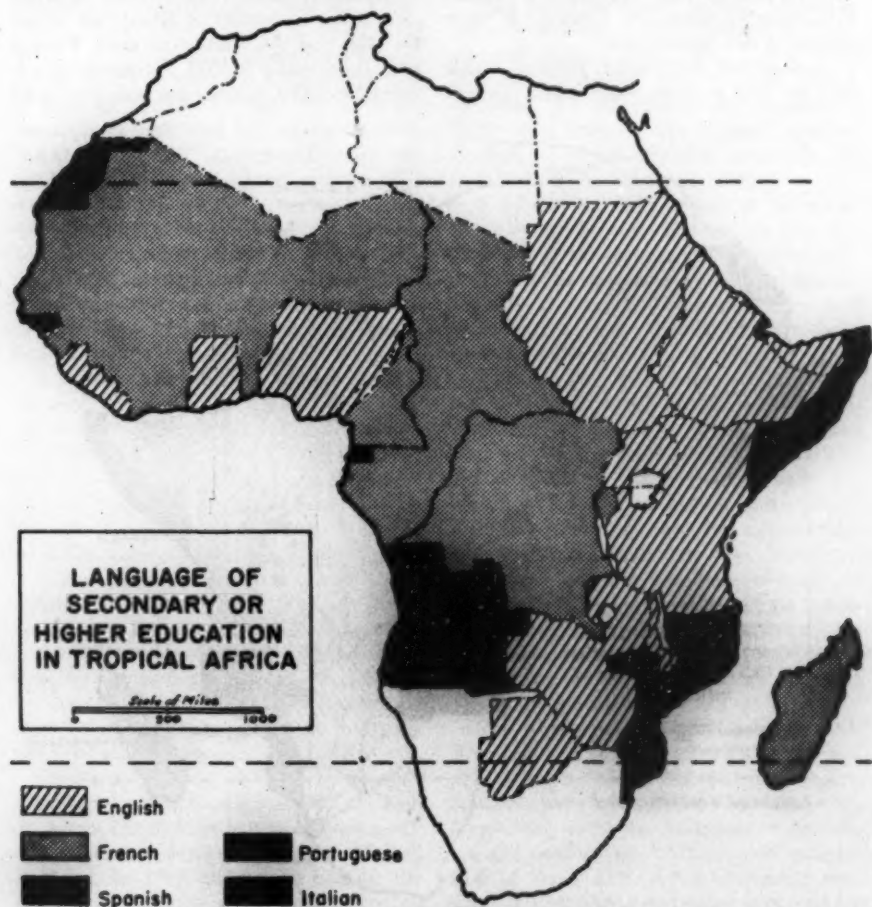


CHART 2.—Language of secondary or higher education in Tropical Africa

schools are expensive to build and to operate.

A fourth essential seems to be guidance from an established medical center. Dakar is supervised by the Universities of Paris and of Bordeaux. The University of Louvain, in Belgium, is building a sister institution at Leopoldville. The University of London has special relationships with university colleges, under which it has visited and aided Khartoum, Makerere College in Uganda, and University College in Ibadan, Nigeria. The Inter-University Council on Higher Education Overseas, in London, is very helpful to new institutions.

Against this background, Tropical Africa may be said to have today eight medical

schools between the Tropics, with a ninth nearby at Durban. Five of the nine serve English-speaking areas; four, the French (Chart 3). A summary from the World Health Organization, of March, 1956, some catalogues and personal letters permit a description, necessarily brief, of each of the nine.

MEDICAL SCHOOLS OF TROPICAL AFRICA

The University of Khartoum.—The northernmost institution is the Kitchener School of Medicine, which is the Faculty of Medicine of the University of Khartoum, where the Blue and the White Nile meet. From a modest beginning in 1924, Kitchener has advanced steadily. At one time from four to six

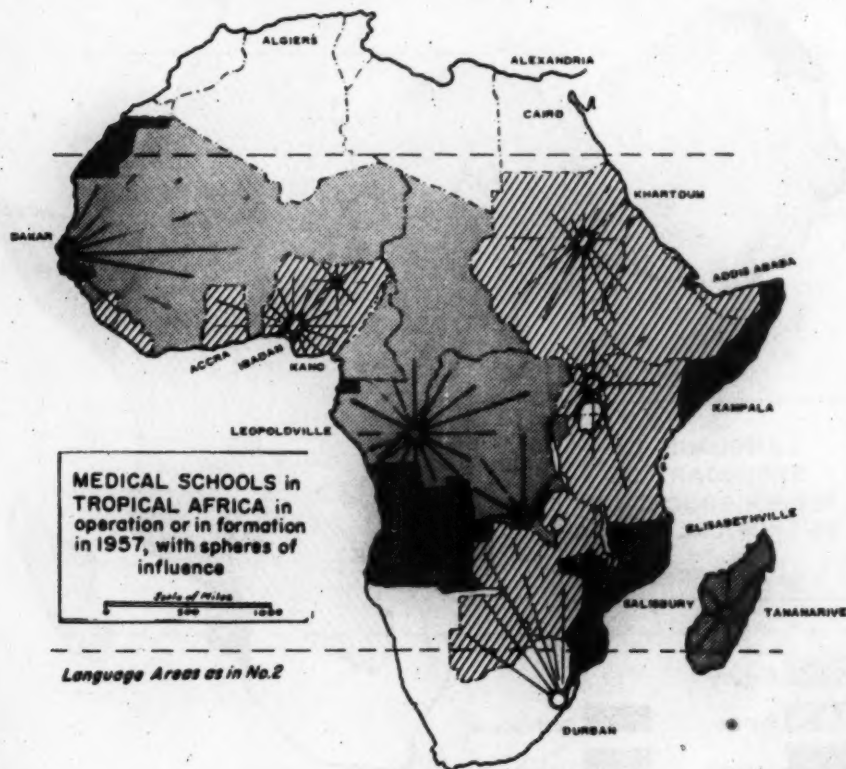


CHART 3.—Medical schools in Tropical Africa

new medical students were admitted every other year. Now 30 are accepted annually for the 1st year, and the present 6th or final year has nineteen students. Khartoum became a University College of the University of London and is now a full University, autonomous, supported by endowment and government grants-in-aid.

The candidate takes the Cambridge Overseas School Certificate Examination and appears before a selection board. The course is 6 years in length and awards the Diploma in Medicine and Surgery (Khartoum); this is being changed to Bachelor of Medicine (Khartoum). For examinations in course, one of the examiners is from England or from an African College. The final examination is supervised by a visitor from the Royal College of Physicians of London and the Royal College of Surgeons of England; I watched the process in December of 1952. After receiving his diploma, the student holds a rotating resident post in the Twin Cities of Khartoum and Omdurman for at least 2 years. He then goes to a position with the government, which has paid all his expenses during the medical course.

For special facilities, Kitchener enjoys the new Civil Hospital at Khartoum, the Omdurman Civil Hospital, the Khartoum Eye Hospital, the Stack Laboratory, the Midwives Training School, and the splendid Graphic Museum of Public Health. There are new buildings for the departments of medicine, anatomy, and physiology.

A postgraduate diploma is offered in obstetrics and gynecology, after a 2-year course of instruction. The School hopes to add other postgraduate courses and diplomas. Kitchener has not sought recognition by the British Medical Council, but the Royal Colleges allow graduates to sit for postgraduate diplomas.

University College of East Africa.—Makerere College, founded in 1922 in Uganda, began 2 years later to give a 4-year medical course, in association with the Mulago Hospital. In 1949, the course became the Faculty of Medicine of the University College of East Africa. The College is autono-

mous, and is supported by the governments of Uganda, Kenya and Tanganyika, by endowments and by fairly substantial fees.

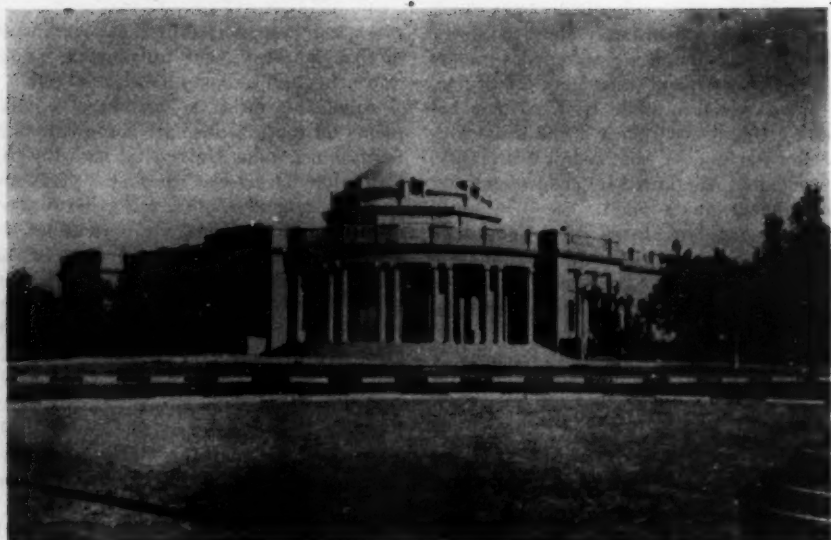
Applicants meet the minimum requirements for the Intermediate Examination in Science of London University, basically the Cambridge Overseas. The first 2 years are spent in general science; the same courses also prepare students for agriculture or veterinary medicine. Of the 5 years in the school of medicine itself, 2 are preclinical, 3 clinical.

Like Khartoum and Dakar, Makerere gives its own degree, the Licentiate in Medicine and Surgery (East Africa). Until 1957, this was recognized only in East Africa, Zanzibar, the Rhodesias, and Nyasaland. Early that summer the General Medical Council of Great Britain admitted the L.M.S.(E.A.) to full registration.

A 2-year internship is required. Service at the 650-bed Mulago Hospital is now approved in Great Britain, so some of the residents will be European. Following the internship, 5 years of government service is required of the East African, after which he may engage in private practice.

The numbers in each year of the 5-year medical course averaged less than ten until the beginning of 1955, when the intake doubled, to twenty. In 1956, it was 23, and 32 in 1957. This rise reflects both the growth of secondary education and economic and social development. Since fewer than 200 qualify each year in East Africa for entry into Makerere, the choice of medicine by 32 reflects the popularity of the course. Nine were graduated in 1955, and the present 5th-year class numbers seven. Selection is so rigorous that most of those admitted eventually graduate.

The total enrollment in medicine is 88. Three are women, and five or six are Indians or Goans. One is from Zanzibar. In the past, students have come from the Rhodesias, Nyasaland, Ethiopia; Sudanese or Somalis are also possibilities. With the new recognition of the L.M.S.(E.A.), European residents of East Africa may enter Makerere for the course in medicine.



PHOTOGRAPH OF KITCHENER SCHOOL OF MEDICINE, UNIVERSITY OF KHARTOUM



ARTIST'S DRAWING OF THE HOSPITAL. UNIVERSITY COLLEGE OF IBADAN, NIGERIA

Institut des Hautes Études de Dakar.—The African School of Medicine and Pharmacy, established in Dakar in 1918 to train auxiliary health workers, gave way in 1950 to the Preparatory School of Medicine and of Pharmacy, a part of the Institute. In 1956, the students of the School of Medicine numbered 85, of whom 21 came from Metropolitan France, the others from Africa or elsewhere in the French Union. Some of those from France are women, and a few African women have been enrolled. The Institut is a State school, and tuition is nominal.

Entrance requirements are as in France: the baccalaureate or secondary school certificate, and the PCB (physics, chemistry, biology) certificate. After 3 years of study in Dakar, those who pass go to France for 3 years of clinical work. An intern year is available in Dakar. A joint Committee of the Universities of Paris and of Bordeaux is responsible for the standard of studies, and sends professors to Dakar for inspection at regular intervals.

The student body is growing steadily. The number starting the 1st year has increased annually—from fourteen in November, 1950, to 34 in the fall of 1956. Third-year students have risen from five in 1952 to nineteen in 1956. The total enrollment for the first 3 years was 42 in 1953, 63 in 1954, 70 in 1955, and 85 in 1956.

It is probable, the School writes, that the 4th year of medicine will first be given in Dakar in November, 1958, the 5th in 1959, and the 6th in 1960. The entire course will then be given in Dakar. The teaching hospital has about 1,000 beds. The graduates will receive the French State diploma.

University College of Ibadan, Nigeria.—When the University College of Ibadan was founded in 1948, in "Special Relationship" with the University of London, a Faculty of Medicine was included. This in turn was a development from a second-class medical school maintained at Yaba, near Lagos. Started by the British Government with a grant from the Colonial Development and Welfare Act, the College has been endowed by the Nigerian Government and by the

Nigerian Cocoa Marketing Board, and receives an annual grant from the Nigerian Government. Ibadan has a population of over 450,000.

"Special Relationship," it is recalled, is a postwar arrangement whereby the University of London inspects facilities and courses, and confers its degrees on the graduates of a University College in the Commonwealth. The University College is autonomous, but this relation to the University of London helps greatly in protecting a young institution against political and economic pressure. In due time Ibadan will become a full university in its own right, conferring its own degrees.

After inspection in 1950, the University of London approved the preclinical instruction at Ibadan, and admitted the students to its own intermediate examination, but did not approve the facilities for clinical teaching. The plight of the twelve students about to begin their clinical years was relieved by provisions made for them in the United Kingdom, largely in London.

The legislature had already authorized the construction of a great new teaching hospital, which has now been opened in 1957, at a cost of over 4½ million pounds, or about \$13,000,000, with 500 beds; the picture is of the architect's drawings. The hospital has its own board of managers, and a school of nursing. If the inspection of the clinical facilities made by the University of London results in a favorable report, it is planned to start 3 years of clinical teaching in Ibadan about this very time, with sixteen students. Various postgraduate courses are also planned, and extensive research. The Faculty of Medicine expects to graduate ultimately 50 physicians a year, with the M.B., B.S. degree of London University. This is another institution in which Fulbright scholarships are available for scientists of the United States.

The medical school began with a course of 2 premedical years, 2 preclinical and 3 clinical, seven in all. Admissions are limited by the small number of students finishing secondary schools and sitting for the college

entrance examination. Numbers are increasing, however, and some students enter directly upon the preclinical years. Fees are substantial, but there are numbers of scholarships.

This school should receive students from other areas on the West Coast in which higher education is in English, such as Sierra Leone, Ghana, and Liberia.

Kano Medical School, Nigeria.—In the old walled city of Kano, in the Northern Region of Nigeria, the Ministry of Health of the Region opened a medical school in April, 1954, to train Northern Nigerians as assistant medical officers. Two medical schools in Nigeria at this stage might excite comment, but the country has over 32,000,000 people, and Kano is 500 miles by air from Ibadan. The northerners are a different people, and the Regional Government decided to have its own medical school. In December, 1957, the first class of students took the professional examinations in anatomy and physiology.

Admissions are at present limited to twelve each year. Those with an approved Local School Certificate come before the Committee of Selection. Some are now presenting School Leaving Certificates. The School is not as yet associated with any British teaching university, but an association is expected as soon as the educational qualifications of the students would entitle them to admission to a British university.

The financial situation is different from that in the south. The student must live in a hostel, but for this no charge is made. The student also receives monthly pocket money, and an issue of clothing. On passing the first professional examination, he is given an advance, repayable in 36 installments, to purchase a bicycle.

After 5 years of medical instruction, the student who passes his examinations will receive a license as a Medical Practitioner in the Northern Region of Nigeria; this is not valid elsewhere. He serves the government, and rises through refresher courses and further examinations. He is not permitted private practice while employed, and must re-

ceive permission to resign and engage in private practice.

The new school is rising on a 50-acre site within the walled city. The chemistry, physics, botany, and zoology laboratories are completed and in use. The anatomy block and physiology laboratory are in temporary buildings, but it is hoped to have these, together with the new hostel and lecture rooms, completed early in 1958. The teaching laboratories will accommodate 25 students. There is no separate teaching hospital, but the School uses the City Hospital* Kano, a 450-bed institution staffed with specialized officers.

It is hoped that eventually this School will become the nucleus of a Northern Nigeria University. Meanwhile, it aims to produce the assistant medical officers who are so badly needed. In the next 5-10 years it should be affiliated with one of the British medical teaching universities, the educational standards of candidates will rise, and in due course the graduate will hope for a place in the British Medical Register.

Faculty of Medicine, Université Lovanium, Belgian Congo.—The origin of this school goes back to 1925, when some members of the Medical Faculty of the 500-year-old Belgian University of Louvain set up a medical center at Kisantu, in the Lower Congo. The founders felt that "the sanitary conditions of the Congolese populations could not possibly be improved in an efficient way without the cooperation of the Congolese themselves." At Kisantu nurses were trained, then agricultural, and later medical assistants. From this grew the idea of a University. The colonial government allotted a site on sandy hills near Leopoldville, affording a magnificent view of the Stanley Pool, the capital, and Brazzaville across in French territory.

The decree establishing the University was issued in February, 1956, but the classes of the Faculty of Medicine, with those of several other departments, opened in October, 1954. The University is coeducational, and the students come both from the Congo and from Belgium itself. The policy is inter-

racial and interconfessional. Support comes from construction grants and maintenance subsidies from the colonial administration, from gifts from the Congo and from Belgium, and from fees.

For admission in medicine the candidate presents either a Belgian secondary education certificate, with Latin or Greek and Latin, or a Congolese secondary education certificate plus 1 year of pre-university study. This last course is offered by the University itself.

There were three students in the 3d year of undergraduate study, just finished, seven in the second, and twelve in the first. The numbers are growing, but it will be some time before more than 25 are admitted a year, since the preparatory school enrollment in the Congo increases slowly.

Graduate study in medicine will take 4 years, the last of which will be entirely clinical. All students will take a course in tropical medicine. The teaching hospital will have 900 beds when completed; the first part will open in November, 1957. The 7-year curriculum will lead to the degree of Doctor of Medicine; the first class will graduate in 1961.

The medical building, which is close to the hospital, will be largely completed by 1958. It will house all the laboratories.

A recent visitor writes that Lovanium "is most impressive." From the accounts, it suggests something of Peking Union Medical College, when it was taking shape. The Congo, however, does not have the development of colleges and secondary schools found in China a generation ago.

Université Officielle du Congo Belge et du Ruanda-Urundi.—On the other side of the Congo, almost 1,000 miles to the southeast, is Elizabethville. It is long the custom of the colonial government to support substantially both its own schools and hospitals and those of private groups. Thus, the University of the Belgian Congo was opened less than a year ago, in November, 1956. One might ask how many students the secondary schools of the Congo can graduate each year, ready to enter a university; but in its

1st year, just closed, the Official University enrolled 22 students in its courses in general science, while 3 years ago Lovanium admitted 33 for all of its 1st-year classes.

Of these 22, a dozen are expected to go on to the study of medicine. The course is the same as in Belgium, or at Lovanium: i.e., after 2 years or more of study, on subjects laying the foundation for medicine—atomy, physiology, histology, physiological chemistry—the student receives the title of Candidate in Natural and Medical Sciences. After 4 additional years of study, he obtains the degree of Doctor of Medicine, Surgery, and Obstetrics.

The University authorities estimate that, at the present rate of development of general education, in about 5 years the number of applicants to study medicine will number several dozens a year. It is realized that it will still take time for the number of physicians graduated to make important changes in health conditions.

School of Medicine of Tananarive (Madagascar).—Founded in 1896, the School of Medicine and Pharmacy of Tananarive has for some time been operating on a 5-year basis, 1 year of premedical subjects (physics, chemistry, biology) and 4 years of medicine. Admission to the School required the secondary school certificate (baccalaureat), although a holder of an elementary school certificate could be admitted by competitive examination. The graduate received the diploma of Physician of the Medical Services for Madagascar and Dependencies. Hospital internships and externships were offered on a competitive basis. In 1955, the School had 90 students in all, of whom three were women. It was admitting twenty students a year and graduating fifteen. In 1953, sixteen students took the P.C.B. examination, and eleven passed; of these, four were born in Madagascar, seven elsewhere.

Early in 1956, WHO reported that this institution was to be transformed into a Preparatory School of Medicine and of Pharmacy, as part of an Institut des Hautes Études. The School was placed under the patronage of the Faculty of Medicine and

Pharmacy of the Aix-Marseille University, of the Faculty of Medicine of the University of Paris, and of the Faculty of Medicine and Pharmacy of the University of Bordeaux. No details have been forthcoming, but the title is the same as at Dakar, so that a 6-year course may be presumed. Those who finish will receive the equivalent of the French State Diploma. As at Dakar, there are no fees.

Other language areas.—Portugal has no overseas medical schools save at Goa, in India. A promising student in Angola or Mozambique who is interested in medicine would be sent to one of the medical schools in Portugal. Scholarship funds are available.

A like policy is followed in Spanish colonies and in Italian Somaliland.

Durban Medical School (The Faculty of Medicine of the University of Natal).—The medical school at Durban is included in this study because of the substantial and growing number of Africans from the Tropical Zone who are enrolled. Of the 190 in the School this year, 21 come from outside the Union (Southern Rhodesia, eleven; Northern Rhodesia, five; Nyasaland, one; Basutoland, four).

The Durban school was late in development. Missionaries started a school of medicine in 1922, but the authorities discouraged it. A series of committees made recommendations, and finally the first students were admitted in 1951. Growth has been steady and rapid; there are many applicants for the available places.

The Faculty set up a 6-year course following the "minimum medical curriculum" of the South African Medical Council. The School felt it wise to have also a Preliminary Year, giving the student a broader basis of general education for his professional work. In this year he takes more English, history, another language, and additional science. Admission to the Preliminary Year requires the matriculation certificate of the Joint Board of the Universities of South Africa. The holder of a B.Sc. or a B.Sc.Hyg. may enter directly on the 2d year of the medical course.

A special feature of the School is a Department of Family Practice, set up with a grant from the Rockefeller Foundation and with cooperation from the Union's Ministry of Health. An Institute of Family and Community Health, developed under the Ministry, and now the responsibility of the Natal Provincial Administration, is close to the University. The student becomes familiar with the type of family practice the Institute has developed, combining preventive with curative health services.

The premedical courses are given at Wentworth, a suburb, in brick buildings taken over by the Union from the Imperial Government at the close of the war. The King Edward VIII Hospital, of 1,550 beds, is used for teaching; there are 8,000 deliveries annually. Tuberculosis, leprosy, and mental illness are studied at three other hospitals in or near Durban. The Medical School Building is a six-story structure adjacent to the King Edward VIII Hospital, completed in 1955. It was built with Government funds. Private contributions, including gifts from African and Indian sources, help furnish equipment.

The student body in 1955 numbered 135, of whom 23 were women. The total enrollment in 1956 was 160; and this year, 190. The first class, of fourteen, was to graduate at the end of 1957, and will receive the M.B., Ch.B. degree. Internships are available in the hospitals listed, and others in Durban and nearby.

An active research program has been developed. The School has made an excellent beginning, and should be of real service to its neighbors in the Tropics. The pressures exerted by the present Union government are strong, however, and whether the University can remain autonomous remains to be seen.

THE FUTURE

What other medical schools are probable?—It is evident that interest in medical education is growing. Each school we have studied is increasing its enrollment and facilities rapidly. The list just discussed even in-

cludes two institutions not noted by the World Health Organization in its report of March, 1956. It is fair to ask whether still other schools of medicine may appear in this area within the next few years.

There are several indications that this will happen.

In the new republic of Ghana, the subject of establishing a medical school has been considered for some time. A teaching hospital has been selected, and the question of capital expenditure discussed. The University College of Ghana is anxious to start pre-clinical teaching as soon as Government authorizes a medical school. Meanwhile, students are sent abroad; for the first time some are going to Ibadan University this year.

In the Federation of Rhodesia and Nyasaland, scholarships are available for citizens of the Federation to take medical training elsewhere. As we saw, there are sixteen at Durban this year. The question is being studied of setting up a Faculty of Medicine within the newly organized University College of Rhodesia and Nyasaland. This is an interracial institution just opened near Salisbury. A Medical School Planning Committee has been taking evidence, but its report was not available in August. Ground for a site for a medical school has been promised.

The Ministry of Education of Ethiopia circulated blueprints in the fall of 1952 and asked for bids on the construction of a medical school on Churchill Road in Addis Ababa. Then the project was shelved, probably to make room for a College of Agriculture, which has since been built. As the educational base in Ethiopia is broadening steadily, the medical school project will doubtless come up again. Eritrea had a small school at Asmara, associated with the University of Rome, but this died after the federation with Ethiopia in 1952.

Both Kenya and Tanganyika "would like to have university institutions, including medical schools, and the potential requirements of 20 million people will ultimately bring this about." If Europeans in East Africa attend the local university in larger

numbers, the school of medicine at Kampala will more quickly reach its limit of about 80 admissions a year, and new schools at Dar es Salaam and Nairobi will loom on the horizon. The UN Commission on Non-Self-Governing Territories urges Government to place increased emphasis on higher education.

French Equatorial Africa is far from Dakar. Eventually, it will be reasonable to have a medical school at Brazzaville or a nearby center. Meanwhile, will advantage be taken of the presence of French-speaking Lovanium, across the Congo River?

One of the present schools for medical assistants in the Congo may expand into a school of medicine. This may well be Kimbese, in a strategic location.

CONCLUSIONS

As one studies each of these medical schools and its sphere of influence on the map of Africa, Portia's words come to mind: "How far that little candle throws his beams!" By any standard, the schools we have discussed are small. Their total enrollment might not reach that of Pennsylvania or Jefferson, here in Philadelphia. Yet what light each school sheds out across a wide area!

As the present rate of progress in tropical Africa, the demand for modern medicine will pyramid. Today the 175 million people in the United States are served by 78 Grade A medical schools, and more are called for. How many years will it be before tropical Africa will demand 70 schools of medicine, each much larger than any now there? One cannot tell, nor ascertain the sources of their support, or what secondary schools and colleges will prepare their students; but one can be sure that the demand will come. Africa presses. In this, as in other matters, it may be later than we think.

The present medical schools have made a substantial beginning. Their leaders are to be congratulated on their wisdom and on their opportunities. In medical education in Tropical Africa in 1957, "day's at the morn."

REFERENCES

- ADAMS, E. B. University of Natal, Durban, personal communications.
- BOURGEOISE, W., Rector, Université Officielle du Congo Belge, Elisabethville, personal communication, 1957.
- CASTRO E ABREU, A. DE, Counsellor, Portuguese Embassy, Washington, personal communication, 1957.
- Dakar, Institut des Hautes Études de, École de Médecine et de Pharmacie, Extrait du Livret de l'Étudiant, 1955-56.
- DEANIS, BARON, Counselor for Belgian Congo Affairs, Belgian Embassy, Washington, personal communication, 1957.
- France Overseas, 1956.
- GALE, G. W., The Durban Medical School; A Progress Report. *South African M.J.*, 29:436-40, 1956.
- . Department of Preventive Medicine, Makerere College, Uganda, personal communication, 1957.
- GILLIES, E. C., Principal, Kano Medical School, personal communication, 1957.
- Gold Coast, Development Report for, 1956.
- Ibadan, Nigeria, University College, Calendar, 1956-57. Office of the Dean of Medicine, personal communication, 1957. Review, Laying of the Corner Stone of the University College Hospital, Nov., 1954.
- Inter-University Council for Higher Education Overseas, 1946-54, June, 1955.
- KARK, S. L., A University Department of Social, Preventive and Family Medicine. *Univ. of Natal Gaz.*, III:1, 1956.
- Khartoum, University College of, General Information Catalog, 1955.
- Lovanium, Université de Leopoldville, Anne Académique, 1956-57, Programme de Course.
- Makerere, University College of East Africa, Report for the Year 1955.
- MAXWELL, I. C. M. Inter-University Council for Higher Education Overseas, personal communication, 1957.
- MEYRIGNAC H. Le Secrétaire de l'Institut des Hautes Études, Dakar, personal communication, 1957.
- MILTON, C. C., Office of the Minister for Rhodesia and Nyasaland Affairs, British Embassy, Washington, personal communication, 1957.
- MORGAN, H. V., Dean, Kitchener School of Medicine, Khartoum, personal communication, 1957.
- MOROT-SIA, E., Cultural Counselor, Representative of French Universities in the United States, Ambassade de France, New York, personal communication.
- Natal, University of, Faculty of Medicine, Catalog, 1957.
- Non-Self-Governing Territories, Report of the Committee on Information from, United Nations, 1955 and 1956.
- Permanent Secretary, Ministry of Health, Ghana, personal communication.
- Rhodesia and Nyasaland; Annual Report on the Public Health, 1955.
- SEGHERRA, K., Faculty of Medicine, Université Lovanium, Leopoldville, personal communication.
- Tanganyika; Annual Report of the Medical Department, 1955. 2v.
- TROUPIN, J. L., Medical Schools and Physicians—Quantitative Aspects, *Bull. World Health Org.*, 12:411-23, 1955; Medical Schools and Physicians, *Bull. World Health Org.*, 13:345-61.
- Uganda, Annual Report of the Medical Department, 1955.
- United Nations Demographic Yearbook, 1956; Population and Vital Statistics Reports, April, 1957.
- WILLIAMS, D., Colonial Attaché, British Embassy, Washington, personal communications, 1957.
- World Director of Medical Schools, World Health Organization, Sept., 1955.
- World Health Organization: Undergraduate Medical Education: Belgian Congo, Jan., 1956; French West Africa, March, 1956; Madagascar, March, 1956; Nigeria, Feb., 1956; The Sudan, March, 1956; Uganda, May, 1956; Union of South Africa, March, 1956.

Social Medicine as an Academic Discipline

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There exists at the present time a considerable lack of clarity on the nature and scope of social medicine and its place in the medical curriculum. This confusion stems from a variety of causes, not the least of which is the failure of those active in the field to clarify the issues. Since no solid intellectual edifice can be built on foggy notions, efforts to dispel the prevailing mists are essential if we are to establish social medicine on a firm foundation. This paper attempts, therefore, to define social medicine and its major subdivisions, to indicate its role in the medical school, and to outline the necessary conditions for its productive development as an academic discipline.

Social medicine may be defined simply as the study of the interrelationships of society on the one hand and health and medicine on the other. It has two main subdivisions: the epidemiology of disease and the organization of health services (9).

EPIDEMIOLOGY

Epidemiology, the study of disease in society, is concerned with the amount and kinds of diseases that affect communities, their incidence and prevalence in different population groups, and the morbidity and mortality to which they give rise. Such information is essential for the proper organization of health services. However, the science of epidemiology is not limited to descriptions of the social distribution of disease entities; it is actively concerned with investigating the reasons for these distributions to help determine the etiology of dis-

eases and to prevent or limit their occurrence.

A hundred years ago, for example, Snow discovered, by painstaking epidemiologic research, that the incidence of cholera in London was primarily associated with certain polluted water supplies. He offered the theory that the disease was spread by minute living organisms which, on leaving the intestinal tracts of their victims, were transmitted to new human hosts by fecal contamination of drinking water (8). Snow's hypothesis, the validity of which is now fully recognized, laid the basis for the eradication of cholera a good many years before the cholera vibrio was implicated as the agent involved. Similarly, Goldberger demonstrated by epidemiologic studies that the high incidence of pellagra among the rural poor in our South was a function of their social existence, specifically their diet, and thereby provided the basis for eradicating pellagra long before nicotinic acid was identified (2). More recently, epidemiologic studies here and abroad have demonstrated the association between cigarette smoking and lung cancer and may well have given us a significant weapon with which to lower the incidence of this disease without waiting for identification of the specific carcinogen responsible (7).

The science of epidemiology, then, has important contributions to make to our understanding of diseases, their etiology and their control. It represents a significant area of medical knowledge and should be part of the fundamental training of every physician. The medical student needs to learn epidemiology, since it enriches his understand-

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ing of disease processes in man by providing viewpoints and data which he cannot learn at the microscope or the bedside. Moreover, the principles and methods of epidemiology are well established; there is a respectable body of knowledge of communicable disease epidemiology and a growing scientific understanding of the epidemiology of noncommunicable diseases.

There are, nevertheless, very few medical schools in the United States in which epidemiology is taught in a serious or formal way. That it can be so taught is well known; the schools of public health have included epidemiology as a major area of their curriculum for many years. Formal teaching of epidemiology in schools of medicine is feasible as well as desirable; for example, in our school we present a 33-hour course, which includes lectures, case presentations, and laboratory problems. Not only are the basic principles of epidemiology taught, but also their application to common source, direct contact, and vector-borne communicable diseases and to occupational, neoplastic, cardiovascular and other noncommunicable diseases. Case presentations by the students serve to demonstrate the operation of epidemiologic factors in individual patients and thereby help students to think of their patients not only in terms of disordered physiology or of diagnosis and treatment, but also epidemiologically, in terms of the factors in the patient's social environment which have led to his illness. In the laboratory sessions, the student is presented with problems involving specific outbreaks or data on various types of distribution of disease, and is asked to apply epidemiologic methods to their solution.

In addition, we present a prior course in medical statistics which is designed to equip the student with at least an elementary understanding of scientific method as applied to laboratory research, clinical trials, and epidemiologic studies. The teaching of medical statistics is not necessarily a responsibility of departments of social medicine; it forms a useful basis for the study not only of epidemiology but of most medical subjects

and could be presented by other departments as well. It is taught as part of the social medicine curriculum in a number of schools primarily because the responsible faculty members have had formal training in biostatistics in schools of public health and are therefore better equipped for such teaching than the members of other departments.

No subject in the medical curriculum can claim its full place as an academic discipline unless its teachers augment medical knowledge in addition to presenting what is already known. Research in epidemiology is largely an untitled field in our medical schools, yet the possibilities for fruitful contributions are very great. Most of our modern plagues—cardiovascular disease, cancer, arthritis, mental disease, peptic ulcer, and others—remain for the most part unsolved problems. Medical schools which attempt to solve these problems through research limited to laboratory or clinical approaches and disregard the need for epidemiologic studies are simply neglecting their opportunities, for research in epidemiology—the study of diseases in human population groups—can provide a very useful methodological approach used either independently or in conjunction with laboratory and clinical research. The epidemiologists' investigations of cigarette smoking and lung cancer have, for example, stimulated a considerable amount of laboratory research in the carcinogens possibly responsible for this association. The epidemiologic studies by Lilienfeld and Pasamanick demonstrating the significant association of complications of pregnancy with cerebral palsy, epilepsy, and mental defect have considerably affected clinical thinking in these areas and pointed the way toward further laboratory and clinical research as well as possibilities for prevention (4). Epidemiologic investigations of heart disease are already uncovering valuable leads for further work.

Most of these investigations have been carried out by health departments or schools of public health, yet these agencies have no fundamental advantages over schools of

medicine as bases for epidemiologic research. As a matter of fact, the medical school has a considerable advantage, because it furnishes a climate in which the major health problems are constantly brought to the epidemiologist's notice and in which close collaboration with laboratory and clinical personnel is relatively easy to achieve. In our medical school, for instance, a series of epidemiologic studies is under way in such varied problems as lung, breast, and gastric cancer, coronary artery disease, hypertension, tuberculosis, children's behavior, ECHO virus disease, and schizophrenia. Some of the studies are being carried out independently by our department, others in close collaboration with members of the departments of medicine, surgery, bacteriology, pediatrics, radiology, and psychiatry.

ORGANIZATION OF HEALTH SERVICES

The second major subdivision of the field of social medicine is the organization of health services. The term health services is used here in the broad sense to include all types of community services concerned with the promotion of health, the prevention of disease, diagnosis and treatment, and the social rehabilitation of the patient.

Some medical educators believe that this area of social medicine need not be taught in the medical school, since the physician will learn everything he needs to know when he enters practice. The only flaw in this reasoning is that it has no basis in fact; one of the disturbing characteristics of medical practitioners is their relative ignorance of the organization of health services and the community resources available for the care of their patients.

The aim of medical education clearly is not to teach the student everything he needs to know for the proper care of his patients; rather, it is to provide him with fundamental knowledge and understanding upon which he may build later and to help give him the spark of motivation and interest which will enable him to do so. One cannot build a house without a foundation, and this applies to social as well as clinical medicine. It is dif-

ficult to see how medical schools can prepare students adequately for medical practice unless they give them some basic understanding of the social framework within which they will practice and the community resources available to help them.

When medicine was practiced by the general practitioner with rudimentary office equipment and a few simple drugs and instruments carried in his bag, the situation was quite different. Today the physician relies heavily on the hospital, a complex community institution uniting numerous professional and nonprofessional groups in common effort. Varied services necessary for the adequate care of his patients are provided by society through health departments, visiting nurse services, rehabilitation centers, and other voluntary and official health and welfare agencies. Still other services essential for the care of his patients—facilities for long-term care, for example—are either unavailable or inadequate, simply because society has not yet moved to remedy the deficiencies.

Moreover, the organization of medical services is in a state of rapid and almost bewildering change. General practice, formerly dominant in the United States, is rapidly disappearing from our urban communities; new forms of medical and hospital organization such as group practice and regionalization of hospitals have come forward; and insurance for medical care, which was practically nonexistent 25 years ago, is now used to a greater or lesser extent by a majority of the population. Medical schools have a responsibility to give students an understanding of these phenomena so they may participate intelligently in the achievement of satisfactory solutions to the urgent problems of health service organization which confront us today.

Formal courses in the organization of health services have been taught for a good number of years in schools of public health, and an increasing number of medical schools have recognized the need for such instruction. The demand for additional teaching materials is now being met by the Associa-

tion of Teachers of Preventive Medicine whose Committee on Medical Care Teaching has just published a volume of *Readings in Medical Care*, designed primarily for medical student use.

One approach to teaching the organization of health services is exemplified by the three formal courses presented at our medical school. Environmental health is taught in eight 2-hour sessions which include problems of housing, radiation, and fluoridation as well as water, milk, and food protection. Medical care is discussed in a lecture course of 11 hours which includes such subjects as the distribution of physicians, general practice and specialization, solo and group practice, hospital organization and financing, quality of care, the long-term patient, and voluntary prepayment plans. The organization of health services is further presented through field visits by groups of three students and seminars conducted by departmental preceptors for groups of twelve students, in a 51-hour course which covers services in the areas of chronic disease, communicable disease control, environmental health, rehabilitation, child health, mental health, occupational health, and medical care. In these courses we attempt to teach not only in a descriptive sense, but also analytically, so that students may understand the reasons for the development of services, the philosophy behind the programs which have been developed, and the deficiencies which need to be remedied to improve services available to physicians and their patients.

There is no valid reason for medical schools to leave research in the organization of health services entirely to the schools of public health. There are, in fact, some major problems in this general area which are of the greatest concern to medical schools. At our school, for example, we have developed a research program in such problems as the distribution of physicians, trends in general practice and specialization, the organization of health services for the chronically ill, and the evaluation of programs for the care of premature infants.

Academic departments of social medicine can also make effective contributions to health service organization in their communities through participation in local health activities, consultations to official and voluntary health agencies, and conduct of special studies of needs and resources to provide a basis for community programs.

SOCIAL MEDICINE AND THE INDIVIDUAL PATIENT

In addition to formal instruction in epidemiology and the organization of health services, it is essential that medical students be taught to understand the social factors involved in the care of individual patients. Such teaching brings the theory and practice of social medicine to bear on the basic problems which every student and every physician faces in practice: Why did this patient become ill? What must be done to get him well? It enables the student to look for the answers to these questions with a broader frame of reference than the purely biological, to see the patient's disease and recovery not merely in terms of physiological changes or reactions to a specific disease agent, but rather in the wider context of interactions of the patient, the disease agent, and the social environment. Furthermore, such teaching makes social medicine vivid and concrete to the student; it is a body of knowledge which he can use in the day-to-day care of the individuals who come to him for help.

A great deal of experimentation has taken place with methods of instruction in this important aspect of the social medicine curriculum. Two major types of teaching programs have been developed. The first includes medical social ward rounds and case conferences utilizing hospitalized or clinic patients. The second adds the use of home visits, so that students may observe patients in their social environment. A variety of methods is used to achieve the latter purpose: family health studies, home care programs, and family health adviser services. All such programs require the development of close cooperative relationships with the clinical departments; the character and ex-

tent of collaboration vary with the specific situation in each medical school and the nature of the teaching method used. The different types of programs are illustrated in the following examples taken from the increasing number of similar programs which have been established in recent years.

At Harvard Medical School, the department of preventive medicine conducts ward rounds in which the usual history, physical examination, laboratory findings, diagnosis, and therapeutic recommendations are supplemented by discussions of social and preventive factors related to the patient's illness and his care following discharge from the hospital. Frequently during these rounds attention is directed to preventive or social factors or the availability of community facilities of great importance for better care of the patient (1).

As part of the coordinated outpatient teaching program at Washington University, weekly seminars are conducted by the department of preventive medicine with groups of fifteen students. Each seminar usually begins with a presentation by a student of one of his patients, followed by discussion of such questions as the impact of the patient's illness on other members of the family, the assistance provided by community agencies, the importance of the disease as assessed by morbidity and mortality data, and community approaches to prevention and control (6).

During the fourth-year clerkship in community health at the State University College of Medicine at New York City, each student is required to carry out a family health study. The student is introduced to the family in its home by a public health nurse. He is expected to conduct a complete examination of the health status and needs of each individual in the family, taking into account the social as well as biological factors involved, and to consider the preventive and rehabilitative measures and community resources required. Appropriate referrals are then made for needed services following a conference with members of the department (1).

Home medical services provided by the Boston University School of Medicine and by the Medical College of Virginia are utilized by the department of preventive medicine for regular teaching sessions at which patients seen by the students are presented and the social aspects of their illness and care are discussed (1).

The family health adviser service at the University of Pennsylvania provides medical students with an opportunity for continuous contact with the same family throughout the four years of the medical curriculum. The families are selected by the social service department of the University Hospital, and the students visit their assigned families about once a month or more often when indicated for some special problem or illness. Their function is to advise and help the family in meeting its medical and related needs. Working under the close supervision of clinicians and a medical social worker, they gain considerable understanding of family health problems and of the home and social environment (3).

In all such programs the medical social worker plays a key role. Her contribution to the medical care of patients is, as Ryle states, "social diagnosis and social therapeutics—the investigation of conditions, the organization of after-care, and the readjustment of the lives of individuals and families disturbed or broken by illness" (5). She helps the patient and his family to understand his illness and to follow the required regimen, she helps arrange for additional needed health services available in the community, and she helps manipulate his social milieu in the interest of his recovery. To this end she draws on a wide variety of social agencies—housing authorities, family agencies, welfare departments, housework services, vocational rehabilitation agencies, recreational resources, and organizations providing various types of specialized health services. In relation to the medical student, her task is to teach by practical demonstration the importance of these social aspects of the care of his patient, to sensitize him to the fact that his patient's sickness and recovery

have social as well as medical determinants, and to teach him how to use the social agencies available to help restore his patient to the fullest possible reintegration as a functioning member of society.

Of course, other members of the department of social medicine have significant contributions to make in this connection and should participate actively in the social medical case conferences, adding to the discussion of individual patients insights from epidemiology, health service organization, social science, and public health nursing. Such participation by departmental personnel in the traditional medical teaching conferences is also highly desirable, for they can bring to these conferences information and viewpoints useful both to the clinicians and the students involved.

THE LABORATORY OF SOCIAL MEDICINE

Each of the three basic approaches to the study of disease in man has its characteristic locus or workshop. For the basic sciences, it is the laboratory; for the clinical disciplines, the hospital; and for social medicine, the community itself.

To illustrate, the course in organization of health services at our school includes field visits to a wide variety of local health programs operated by voluntary and official agencies and institutions. Our epidemiologic studies likewise have a community base. One member of our department has developed a representative sample of the city's population for use in studies of lung and cervical cancer; other members have made use of this sample or variations of it for studies of the behavior characteristics of children and the social mobility of tuberculosis and schizophrenia patients as compared with the general population. We have also sent interviewers into the homes of patients with a history of specific diseases such as myocardial infarction and cervical cancer, and have compared epidemiologic data obtained from them with information from a matched control group obtained by interviewing the next suitable person in an adjoining household. An outbreak of illness in

one of the communities in our region was the occasion for a combined epidemiologic and laboratory study of ECHO virus disease.

Of course, we also utilize the teaching and other hospitals of the community for epidemiologic studies. Data from the mental hospitals in the region have been obtained for a study of the social distribution of schizophrenia patients, and patients and matched controls from our teaching hospitals have been used to study the role of dietary habits in the epidemiology of such diseases as hypertension and gastric cancer.

Other medical schools have successfully used affiliated district health centers of the community health department for clinical clerkships in public health. Still others utilize the clinical services of the medical school itself, such as home care programs or the outpatient clinics of the teaching hospital, as a base for their teaching program. The particular community health services used will depend of course on the specific circumstances in the medical school and the community which it serves.

SOME MISCONCEPTIONS

Several major misconceptions currently impede the development of social medicine as an academic discipline. One is the widespread tendency of medical educators to equate social medicine and medical social work; in such instances the school establishes a home care program or "comprehensive medical care clinic" in which medical social workers play an active teaching role, and considers that thereby it has fully met its responsibilities. This approach cannot do justice to social medicine, for it confines the field to a single aspect of practice and ignores the scientific and theoretical basis of the discipline. It substitutes a small part for the whole, neglecting the necessity for formal teaching and productive research in the two main subdivisions of social medicine, epidemiology and health service organization. Where this narrow concept prevails, there can be no real development of social medicine as an academic discipline.

Another common misconception is that

the teaching of social medicine should be left to departments of psychiatry. It is true that psychiatrists often deal with social problems and should be able to make a contribution in this area. However, academic departments of psychiatry in this country, which are almost entirely psychoanalytic in orientation, tend to view human behavior as determined primarily by unconscious internal forces and to pay insufficient attention to the social situation of the individual. Further, as in the case of medical social work, to leave social medicine to the psychiatrists, whatever their orientation, is to strip social medicine of most of its content by excluding epidemiology and health service organization and to eliminate the possibility of useful social medical research in these areas.

SEMANTIC DIFFICULTIES

In Europe the term social medicine has been commonly used in the designation of academic departments. This was not true in Great Britain until after the Second World War, when the General Medical Council recommended that the subject hitherto taught to medical students under the name of public health or preventive medicine should thenceforth be known as social medicine and public health. Today in Great Britain, the term social medicine is used in the title of most departments concerned with this discipline.

In the United States, on the other hand, academic departments are still called departments of preventive medicine or public health. There are two reasons for this, one historical, the other tactical. Historically, in Great Britain and the United States, these departments taught public health, and, since public health until recent years was concerned almost exclusively with prevention, the term preventive medicine also came into general use. The tactical reason arises from fear that the inability of many physicians to distinguish social medicine from socialized medicine might lead to misunderstandings. Except for the University of Virginia, which has a Department of Social and Environmental Medicine, there are

no academic departments of social medicine in the United States which are so identified.

This is regrettable, because neither of the traditional titles—public health or preventive medicine—is really satisfactory. The term public health is inadequate because it tends to indicate that the department is concerned only with the activities of public health departments. However, departments of social medicine have much wider interests; our own department, for example, is concerned with all aspects of the organization of health services, including the organization of medical practice, hospital services, and the work of all types of official and voluntary health agencies.

The term preventive medicine is not only unsatisfactory in that it obviously precludes concern with the organization of curative and rehabilitation services; it is also misleading in that around this term has grown a very restricted concept of the role and functions of departments of social medicine. This is the concept of "clinical preventive medicine" which has unfortunately achieved considerable acceptance by medical educators. According to this viewpoint, the primary if not the only function of departments of social medicine is to teach medical students to practice preventive medicine as part of clinical practice. The difficulty with this theory is that it tends to lead logically to one result: the abolition of departments of social medicine—for the place to teach preventive medicine as part of clinical practice is precisely in the clinical departments, and if this function were the only rationale for the establishment of departments of social medicine, then they have little reason for existence. No department of obstetrics or pediatrics is worth its salt unless it teaches preventive supervision of mothers or children, and preventive management is part and parcel of good clinical practice today in medicine, surgery, and psychiatry.

It is undoubtedly true that departments of social medicine need to emphasize preventive measures in teaching the application of social medicine to the individual patient. In addition, they can and should play a sig-

nificant role in stimulating clinical departments to accept their responsibilities for prevention. But these functions are by no means primary. The major role of departments of social medicine in the field of prevention lies in the teaching of epidemiology and in the development of epidemiologic research which will help give clinicians and laboratory workers new weapons to prevent the major diseases of our time, the chronic diseases in the face of which we are still relatively impotent. Furthermore, the concept of clinical preventive medicine as the primary function of departments of social medicine relegates a major area of interest of these departments—the organization of preventive and curative health services—to a position of inconsequence. Departments of social medicine organized on the basis of the concept of clinical preventive medicine tend, therefore, to be more and more indistinguishable from departments of clinical medicine; they often appear in fact to serve merely as auxiliary departments of medicine.

LEADERSHIP AND STAFFING

It is clear from the above discussion that the leadership of departments of social medicine should be placed in the hands of physicians with broad training and experience in epidemiology and health service organization. Such training ought to include formal education in schools of public health, which have major responsibility for training the specialists in social medicine, as well as experience in epidemiologic research and in public health or medical care administration.

The basic professional staff of a department of social medicine also comprises statisticians, social scientists, and medical social workers. Depending on its particular responsibilities, the department may include clinicians holding joint appointments with other departments, public health nurses, and part-time members from such fields as environmental health and public health or medical care administration. Generous budgetary support is essential; most depart-

ments of social medicine today receive totally inadequate support and are faced with the discouraging prospect of attempting to build a teaching and research program with practically no resources.

There has been an encouraging trend in recent years towards the utilization of social scientists in medical schools. Too often, however, the functions they are asked to perform seem to indicate a rather limited view of their potential contributions. Thus, a social scientist may be asked to participate in a comprehensive medical care clinic and present his point of view in conferences with medical students; or he may be used to teach students that different groups within society may have different attitudes toward health and disease; or he may carry on research on various phases of physician-patient relationships. These are worth-while functions, but they do not take sufficient advantage of the skills and knowledge of the social scientist, nor do they provide him with the challenge he deserves. The big problems in social medicine are, on the one hand, epidemiologic—determining the specific ways in which the social environment contributes to the etiology of heart disease, cancer, peptic ulcer, schizophrenia, and other diseases—and, on the other hand, organizational—studying such urgent questions as the achievement of effective services for the chronically ill, the mentally ill, the needy, and the aged; provision of adequate numbers of well qualified physicians and other health personnel for rural communities; and evaluation of the impact of medical care insurance, specialization, group practice, and other recent developments on the quantity and quality of medical services, including their effects on physician-patient relationships.

The current lack of sufficient attention to these problems results from the fact that generally the social scientists have worked in clinically oriented departments and their research activities have inevitably reflected clinical interests and concerns. Expansion of the scope of interest is essential if full advantage is to be taken of the potential contribu-

tions of social science to medicine. To this end increased emphasis should be given to the role of social scientists as members of the staffs of departments of social medicine concerned with the basic problems of epidemiology and health service organization. The development and strengthening of such departments is a major responsibility of medical education.

SUMMARY

Social medicine should be included in the medical school curriculum as a distinct academic discipline concerned with teaching and research in the epidemiology of disease and the organization of health services. Further progress requires that departments of social medicine be under the leadership of physicians who are specialists with training and competence in these two major subdivisions of the field. The professional staffs of these departments should also include statisticians, social scientists, medical social workers, and other personnel required to meet specific needs. Their workshop is the community, which provides the essential base for teaching and research in social medicine.

With sufficient support, academic departments of social medicine can make major contributions to medical students' understanding of health and disease, the organization of community health services, and the social factors involved in the care of their patients. The research activities of such departments can play a significant role in extending our present knowledge of human disease and improving our ability to control illness and disability and preserve the health of the public.

In the long history of medical education, a great step forward was taken when the basic sciences were recognized as independent disciplines and given adequate resources for instruction and research. A similar development in social medicine is both necessary and overdue.

REFERENCES

1. CLARK, K. G. Preventive Medicine in Medical Schools: Report of Colorado Springs Conference, November, 1952. Chicago: Association of American Medical Colleges, 1953.
2. GOLDBERGER, J.; WHEELER, G. A.; and SYDENSTRICKER, E. A Study of the Relation of Diet to Pellagra Incidence in Seven Textile-Mill Communities of South Carolina in 1916. *Public Health Rep.*, 35:648-713, 1920.
3. HUBBARD, J. P.; MITCHELL, J. MCK.; POOLE, M. L.; and ROGERS, A. M. The Family in the Training of Medical Students. *J. M. Educ.*, 27:10-18, 1952.
4. LILIENTHAL, A. M.; PARAMANICK, B.; and ROGERS, M. Relationship between Pregnancy Experience and the Development of Certain Neuropsychiatric Disorders in Childhood. *Am. J. Public Health*, 45:637-43, 1955.
5. RYLE, J. A. *Changing Disciplines*. London: Oxford Univ. Press, 1948.
6. SHANK, R. E. Three Years' Experience in the Coordinated Outpatient Program at Washington University. *J. M. Educ.*, 31:283-94, 1956.
7. *Smoking and Health*, Joint Report of the Study Group on Smoking and Health. *Science*, 125:1129-33, 1957.
8. Snow on Cholera, Being a Reprint of Two Papers by John Snow, M.D. New York: Commonwealth Fund, 1936.
9. TERRIS, M. Concepts of Social Medicine. *Soc. Serv. Rev.*, 31:164-78, 1957.

The Medical Student Course in Animal Surgery

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Surgical educators disagree concerning the value, the aim, and the techniques for conducting the medical student course in animal surgery. This is a summary of the attitudes and practices (in this regard) of departments of surgery in the 72 4-year medical schools in the United States, as determined by a poll and edited in light of our own bias and experiences.

HISTORY

Surgery was in the midst of its most productive period of technical advance when American medical education evolved from a proprietary to a professional basis at the turn of the century.

The first course in animal surgery for medical students was begun in this country by Dr. William Stewart Halsted at Johns Hopkins in 1895: He designed the Hunterian laboratory primarily to house this course, with only a secondary role at first assigned to research. In 1901, one of the inducements offered Harvey Cushing to join the Hopkins staff was that he could supervise this course. Under his enthusiastic direction the Hopkins students approached the animal operations exactly as the surgeon does his patient, writing careful histories, operative reports, post-operative progress notes, and, when indicated, performing post-mortem examinations. As in so many fields of medical education, the Hopkins influence was extremely powerful, and for many years most of the medical schools in the United States in-

cluded similar courses in their medical curriculums.

During the past 15 years, as emphasis in medical education has gradually shifted from the technical to the physiologic approach, many laboratory exercises throughout the curriculum, including the animal surgery course, have been replaced by reading assignments, lectures, and instructor demonstrations, with concomitant encroachment on student-performed procedures.

Since curriculum time is so jealously guarded by the medical faculty, it seems fitting to evaluate the merits of such a course in animal surgery and to determine whether it is worth keeping in the medical curriculum.

RESULTS OF QUESTIONNAIRE

To obtain factual data about contemporary practices and attitudes toward an undergraduate course in animal surgery, a simple questionnaire was sent to the chairman of each of the 72 departments of surgery in the United States. Replies were ultimately received from all.

A formal undergraduate course in animal surgery is conducted in 31 of the 72 schools, as listed in Table 1. An additional six schools (also listed in Table 1) intend to inaugurate such a course within the near future. None of the nine Canadian medical schools offers such a course, largely because of budgetary restrictions or difficulties with local pound laws. If the nine Canadian medical schools are excluded, division between the two groups is almost equal, 51 per cent favoring the course, 49 per cent against it.

The course is an elective in nine of the 31

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schools (29 per cent). At seventeen schools (55 per cent), a majority or all of the course is given during the junior year; at five (16 per cent) in the sophomore year; at nine (29 per cent) in the senior year.

The time devoted to the undergraduate animal surgery course averages 14 curriculum hours, divided into seven sessions. There is wide variation in the number of lectures associated with the course, but the average is slightly less than one for each operative period.

TABLE 1

MEDICAL SCHOOLS OFFERING UNDERGRADUATE COURSE IN ANIMAL SURGERY

1. Albany	21. Southwestern
2. Bowman Grey	22. Tennessee
3. Buffalo	23. Temple
4. University of California-San Francisco	24. Texas-Galveston
5. Colorado	25. U.C.L.A.
6. Cornell	26. Tufts
7. Duke	27. University of Virginia
8. Georgia	28. Utah
9. Georgetown	29. Vanderbilt
10. Harvard	30. University of Washington
11. Hopkins	31. Wisconsin
12. Louisiana	
13. Marquette	SCHOOLS PLANNING
14. Miami	TO START SUCH
15. Mississippi	A COURSE
16. Missouri	
17. New York State-Brooklyn	32. Einstein
18. St. Louis University	33. Florida
19. Stanford	34. Iowa
20. South Carolina	35. Oklahoma
	36. Ohio
	37. Pittsburgh

Characteristically, there is a short opening demonstration of the technique of scrubbing, and of donning gowns and gloves before the students practice such preparation for surgery.

A list of the more common operative procedures and topics included in the course is given in Table 2. Simple laparotomy, or laparotomy combined with splenectomy, is the procedure most commonly used for demonstrating principles of wound healing and hemostasis.

Instructional techniques vary as widely as does operative content. Whereas a few schools utilize the course purely as a technical exercise, others use the technical exer-

cises as an introduction to fundamental principles of surgery. Dr. C. Gardner Childs (Tufts) has prepared a laboratory manual for his course; a chapter for each operative session describing the historical background of the procedure or principle under study, provides an illustrated demonstration of the techniques and lists a carefully chosen bibliography.

TABLE 2

COMMON OPERATIVE PROCEDURES PERFORMED IN 32 UNDERGRADUATE COURSES IN ANIMAL SURGERY

Operation	No. schools where operation is included within the curriculum
Laparotomy and splenectomy	20
Exploratory laparotomy	16
Thoracotomy (exploratory, cardiac massage, rib resection, pulmonary resection, left auricular appendectomy, repair, sucking wound, etc.)	17
Wound debridement	15
Enterocentrostomy	14
Gastroenterostomy	12
Thyroidectomy	12
Appendectomy	9
Nephrectomy	8
Cholecystectomy	8
Caecectomy	8
Tendon suture	7
Tracheotomy	6

Varying amounts of instruction in anesthesia are included in 28 of the 32 schools (87 per cent). At Marquette, each student administers four types of agents during the course; a trained anesthesiologist supervises each student anesthetist—a Utopian ratio.

PRO AND CON ARGUMENTS

A. Arguments against the course

1. *It is but a novelty for gaining student interest in surgery.*—Dr. Nathan Womack (North Carolina) feels that it "gives a false impression . . . approaching surgery as a technique rather than as an intellectual concept." Others suggest that it is but "fun," a "novelty," or "public relations exercise" without teaching value, where students "exercise in bad habits" or where the excitement of operating is dishonestly portrayed

and utilized to win student interest in surgery.

Both the proponents and critics of the course recognize that students enjoy doing surgery. In this regard Dr. Edward Woodward (University of Florida) said of such a course, "Anything that students like so much can't be all bad." Dr. Edward Churchill (Harvard) in reply to his questionnaire put it as follows: "Young men like to do things with their hands and still others like to find out whether they like to do things with their hands. . . . I see no great harm in letting these students indulge in a technical exercise of this small magnitude . . . with dissection in anatomy . . . experiments in physiology staged as demonstrations. . . . It is not surprising to find that students yearn to do some hand work."

2. Students become interested in technique at expense of fundamental surgical knowledge.

—Critics of the course variously echoed this objection that instruction in operative technique has no place in undergraduate instruction, and few would argue the point. Certainly where such a course is aimed merely toward teaching a student how to remove a vermiform (or left auricular) appendix, such objections are valid. In most schools, however, this is not the case. Dr. Howard H. Bradshaw (Bowman-Grey), for example, states that the course is "essentially . . . a study of injury and repair . . . without attempt to emphasize technique." Dr. Clarence Dennis (State University at New York, Brooklyn) suggests that such exercise "relieves students of their intense preoccupation with techniques so that thereafter they seem to settle down to the real problems and scope of surgery."

3. Student participation in research is preferable.—Chairmen of departments in four schools suggest that pointless operative technical exercises are of less teaching value than are directed investigative programs. Dr. Champ Lyons (Alabama) is a strong advocate of this approach, as is Dr. Oscar Creech (Tulane), where a required surgical thesis insures some animal operating experience. There can be no argument with the

value of research experience, but how can this routinely provide a complete and supervised experience in the number of surgical subjects so simply covered in an organized course?

4. The senior clerkship or emergency room experience is adequate for such instruction.—Numerous references were made to the fact that well-run junior or senior surgical clerkships provide ample hospital operating room and emergency room experience where students learn operating room procedure at first hand and observe surgical technique performed by experts, not by their amateurish peers.

In rebuttal, it is suggested that such instruction is better accomplished in the more deliberate and individually supervised atmosphere of the laboratory than in a busy hospital operating room.

5. Courses in operative technique are for surgical residents not medical students.—Dr. Leon Goldman (University of California, San Francisco) warned that "Such a course may give students the impression that one can learn surgery by operating on animals," and suggested that operating technique must come from a long and progressive experience with patients.

Dr. Fred Collier (Michigan) said that "If the student were going into surgical training he would not need it, since he would get equivalent practice under more favorable auspices." Furthermore, Dr. Harwell Wilson (Tennessee) suggests that such a course is "of most value to the student who is *not* going into surgery," inasmuch as this is his one and only exposure to surgical techniques which he may not himself practice but which he can better appraise after some personal experience in the animal operating room.

6. The cost is prohibitive in time, personnel, and money.—Nine department chairmen made mention of the excessive cost of such a course and stated that either it did not seem worth the effort or that they were for some reason unable to manage such expenditures. Dr. C. Rollins Hanlon (St. Louis University) solves this financial problem by in-

stituting a separate tuition for this elective course. Another department chairman had a different approach: "The course is very helpful in getting financial support from the school . . . a good part of which is used for research . . . (which) if requested for research would be trimmed."

There is no rebuttal to this objection. To conduct such a course properly requires a large number of supervisory surgical and anesthesiology personnel, adequate animal operating facilities, and housing for dogs for several weeks. Only if the course is honestly beneficial to the medical student is such an expenditure justified.

B. Advantages of the course

1. *A realistic introduction to operative surgery.*—Medical students often hold fanciful ideas concerning operative surgery and may not actually be certain whether they are suited for it. Participation as a very junior and very intimidated member of an operating team in a hospital may do little to enlighten the student, whereas a course in animal surgery, where the student is the responsible surgeon, may help make up his mind. Dr. Edward Stafford (Hopkins) has said that such a course gives the student an opportunity "To see if he has a liking or aptitude for surgery."

2. *The value of learning by doing.*—This educational principle is so well accepted it needs no support and is of particular importance in an era when such a large part of medical education is on a theoretic basis. Criticism of the course must therefore be on its content, not on the educational principle of learning by doing.

3. *A valuable exercise in learning techniques of anesthesia.*—There can be little doubt that the learning experience in anesthesia is intensified when the student knows that he will on the morrow be held responsible by his classmates for maintaining safe yet adequate anesthesia. Theoretic instruction in pharmacology class or observation of a skilled anesthesiologist in a hospital operating room pales by comparison as a teaching experience.

4. *The best introduction to operating room behavior and operating technique.*—Drs. William Longmire and Wiley Barker (University of California, Los Angeles) suggest that the course is "not how to operate, but how to get along in the operating room," and others, e.g., Dr. Francis Moore (Harvard) stated how much more effective were interns who had such an experience.

The educational value of undergraduate instruction in even simple operative technique is debatable, but might well be of value to the future Armed Force medical officer who may have no operating room experience prior to assuming his lonely responsibilities as surgeon on a destroyer, or in a battalion aid station!

5. *A practical course in management of traumatic wounds and wound healing.*—The study of wound healing is a prominent part of most of these courses, and by the end of the period wound contaminations, infections, and occasionally disruptions may be encountered—distressing experiences to the student-surgeon, but not without teaching value. Multiple operations on the same animal also demonstrate the effect of previous procedures in forming adhesions and on inflammatory response.

Fifteen of the 32 schools (47 per cent) utilize this course for practical instruction in the management of traumatic wounds. In our own course the last exercise, just prior to sacrificing the animal, consists of presenting the student with an anesthetized animal having injuries in several parts of the body and often in borderline shock. Students are carefully guided in their approach to the problem of resuscitation, hemostasis, correction of physiologic defects such as sucking wounds of the chest, debridement, and choice of wound priority. Some schools utilize actual gunshot wounds for this final demonstration.

Most of our schools are participants in the program of Medical Education for National Defense, which is liberally financed by the Department of Defense. It is suggested that such funds could be well spent in financing of such a course where future medical

officers obtain practical experience in wound management under careful supervision.

6. *The course is a laboratory demonstration of fundamental surgical principles, not a mere technical exercise.*—Proponents of the course characteristically emphasized that the technical aspects should be minimized or at least utilized only to illustrate the fundamental surgical principles. Just as the student in biochemistry is taught the intricacies of the Van Slyke apparatus only as a part of his understanding of gas exchange and not to become an expert laboratory technician, so is the student in animal surgery merely utilizing the technical features of the course better to understand the principles of surgery.

The most enthusiastic proponents of the course have stressed this point. Dr. John Paine (Buffalo) states, "All students come to class prepared to discuss the indications and pathological and physiological problems involved in the selected operative procedure. A brief knowledge of the various surgical techniques of performing a particular operation is also desirable." Similarly, Dr. C. Gardner Childs (Tufts) and Dr. Raymond Watson (Marquette) have extensive pre-laboratory reading in preparation for each exercise.

CONCLUSIONS

Obviously, there is no unanimity of opinion concerning the value of an undergraduate course in animal surgery, since only one-half of the schools utilize it in their surgical curriculum. At least some of them do not have such courses because of budget and personnel limitations.

Cogent objections center about the course's improper emphasis on techniques at an undergraduate level, and suggest that its advantages are more intelligently attained in the hospital operating room, emergency room, or in animal research experience.

Proponents of the course believe that it develops a valuable and stimulating introduction to the basic techniques of surgery under conditions optimally suited for supervision and instruction. They point out its value in teaching sterile technique, asepsis, the fundamentals of wound healing and wound management, anesthetic techniques, and the applied physiologic concepts of injury. To them the course is not merely a means for learning techniques, but is a stimulating way to illustrate surgical principles. As other disciplines utilize their laboratories, so should surgery use the animal operating room for undergraduate medical instruction.

Survey of General Practitioners' Opinions on Pediatric Education

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The primary responsibility of the medical schools is to train students to meet the problems they will encounter in their practices in such a way that their future patients will derive the greatest possible benefit. In the area of illness and disease this principle has been recognized almost from the time medical schools began. Training has been largely concerned with the diagnosis and treatment of disease; only recently has attention been directed toward prevention as an essential part of medical practice. Probably the biggest area for prevention is in the field of pediatrics.

Many infants and young children receive medical care from the general practitioner who cares for the whole family. The family doctor must therefore be able to act as "health advisor" to parents of his young patients, in addition to being able to diagnose and treat disease. To do this effectively, it is essential for the general practitioner to have sound training in pediatrics, not only in the diagnosis and treatment of pathological conditions to which children may be subject, but also in the area of normal growth and development.

The Study of Child Health Services¹ conducted in the late 1940's brought to particular attention the large percentage of "well" children seen by general practitioners and pediatricians for health supervision. This, in turn, stimulated more interest in training students in the areas of normal growth and development in pediatrics, whether the stu-

dents intended to become pediatricians or not.

The Department of Pediatrics at the University of Washington School of Medicine has been especially concerned with the pediatric training of those who ultimately go into general practice, since the majority of children in this state receive medical care from general practitioners. For the past 10 years, the University of Washington has operated a Child Health Center, located in the student housing project, where children of University students are given health supervision. Since 1950, this clinic has been used extensively to teach medical students normal growth and development. The students, during their 4th-year pediatrics course, spend about 40 hours, or roughly one-third of their pediatric time, in this type of training.² The broad concepts of normal physical and emotional growth and development are emphasized. In this manner, the student encounters a great many of the problems seen in the practice of pediatrics, exclusive of those primarily concerned with physical illness, and gains experience in handling them.

Student response to their training at the Center has usually been quite enthusiastic, but no objective evidence has been available as to whether or not they are able to make use of their acquired knowledge and skills once they go into practice. It was decided, therefore, to attempt to evaluate the results of pediatric training and experience at the Center by determining whether or not the

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¹ Child Health Supervision & Pediatric Education, Commonwealth Fund, 1949.

² Use of the Child Health Conference in Training of Medical Students, *Pediatrics*, Vol. 11, No. 5, May, 1953.

trainees themselves have felt adequately prepared to meet the needs of their patients, especially in the areas of well child supervision. Also, an effort was made to compare the opinions of physicians trained at this University with those of general practitioners who had been trained in other medical schools in the United States. It was felt that a study of these opinions would aid in planning a more effective teaching program for the future.

METHOD

In seeking this type of information, the personal interview was felt to be most effective. We believed that, although physicians would be likely to respond most readily to another physician, graduates of the University of Washington might tend to give answers they thought were expected rather than their true opinions if the physician-interviewer was from the staff of the medical school. It was finally decided that medical students would be most able to obtain objective information from the physicians. Practicing physicians generally are interested in imparting to medical students information they feel may be of value to them. Also, these students would have sufficient background to understand the medical implications of the questions.

To obtain the desired information in the form of facts and statements which could be tabulated and analyzed required that the requests for information be presented to all physicians in the same way. To facilitate recording of information, a questionnaire seemed desirable. Accordingly, three medical students were hired for the summer to help formulate the questionnaire and to interview the physicians chosen.

First, the students were given a period of orientation on the reasons for the study and the type of information desired. By participating in the development of the questionnaire they became very familiar with the form, with the reasons that specific sections were included, and with implications of the questions asked. The first step in the development of the questionnaire was for the staff of the Department of Pediatrics to decide

the type of information they would like to have in evaluating the effectiveness of the training and in planning the teaching program for the future. The three medical students then worked closely with the psychologist at the Child Health Center, the statistician in the Department of Public Health and Preventive Medicine, the personnel of the public opinion laboratory of the University of Washington, and members of the pediatric staff. With such consultants it was possible to design a set of questions the answers to which would bring out certain points, sometimes in two or three different ways. Plans for tabulation and analysis were made before the collection of information was begun. After the questionnaire had been devised, it was tried on a number of physicians who were not to be included in the study, in order to obtain their general reactions and to see whether the questions brought forth the types of information needed.

To have a sufficient volume of information to make statistical comparisons of answers, it was decided to interview at least 50 graduates of the University of Washington and as many graduates of other schools as the time allowed. The first class graduated from the medical school of the University of Washington in 1950. The original list of physicians included all general practitioners in the state who had graduated in 1950 or later. There were 75 graduates of the University of Washington and 158 graduates of other schools practicing in the state. To each of these physicians the Executive Officer of the Department of Pediatrics sent a letter explaining the study and asking the physicians for their cooperation. Then the medical students proceeded to seek appointments with the desired physicians.

The graduates from out-of-state medical schools were selected on the basis of their proximity to the University of Washington graduates. That is, if fifteen Washington graduates were interviewed in Spokane, then at least fifteen physicians trained in other states practicing in Spokane were interviewed also.

RESULTS

The numbers of available physicians (population sizes) and the numbers interviewed are given in Table 1. (As can be seen, except for the Medical Evangelist graduates, a good percentage of the state's general practitioners in the group under study were interviewed.)

TABLE 1
NUMBER OF G.P. IN WASHINGTON GRADUATED
SINCE 1950 AND NUMBER INTERVIEWED
IN THIS STUDY

Medical school	No.	No. inter- viewed	Per cent inter- viewed
Washington	75	53	71
Medical Evangelists	23	4	17
Oregon	19	7	37
St. Louis	17	8	47
Creighton	17	11	65
Others*	82	41	50
TOTALS	233	124	53

* Five or fewer graduates per school.

Table 2 presents some descriptive features on the general practitioners interviewed. There is marked uniformity in the group studied, the only statistically significant difference pertaining to the percentage of Creighton graduates taking a residency.

Physicians' opinions of their pediatric training.—Table 3 lists the mean ratings assigned by the physicians to various general areas of their pediatric education. Little differentiation resulted from this type of question, although two interesting points are apparent. One is that the lowest mean rating observed was given by Washington graduates to their outpatient training; in fact, this value is significantly lower than the values given by Washington graduates to their other departments. The other point is that the only area in which Washington was rated higher than the "Others" class was for well child clinic training.

TABLE 2
GENERAL DESCRIPTIVE CHARACTERISTICS OF PHYSICIANS INTERVIEWED

MEDICAL SCHOOL	PER CENT RESIDENCY	MEAN YEARS PRACTICE	LOCATION PRACTICE		PER CENT LIMITING PRACTICE*	PER CENT PRACTICE PEDIATRICS†	No. PEDIATRIC CARES/ WEEK‡
			Per cent urban	Per cent total			
Washington	35	3.2	77	23	25	32	39
Creighton	0‡	4.5	100	0‡	45	34	39
St. Louis	50	2.8	88	12	12	30	22
Oregon	43	4.3	71	29	43	35	25
Others	36	3.2	88	12	36	36	43

* E.g., no surgery, emphasize obstetrics.

† Physician's estimate.

‡ Obtained from physician's records when available (over 60 per cent reporting).

§ Significant at the 5 per cent level when compared with Washington and "Others."

TABLE 3
GENERAL OPINION OF PEDIATRIC TRAINING
(Rating scale: 1 = poor; 7 = excellent)

Medical School	Out- patient depart- ment	Well child clinic	Hos- pital wards	Lec- tures
Washington	3*	5	5	5
Creighton	6	6	4	5
St. Louis	4	4	6	5
Oregon	4	4	5	6
Others	5	4	6	6

* Significantly different from ratings assigned by Washington graduates to their other areas.

Table 4 gives the opinions of the physicians interviewed as to whether their training in rather specific areas should have received more emphasis (+), was emphasized sufficiently (0), or should have received less emphasis (-). First may be noticed the areas in which there is marked uniformity among the graduates of the various medical schools. Significantly more emphasis on training was indicated for childhood virus diseases, accident prevention, and ill child care by Washington, "Others," and even

TABLE 4
OPINION ON TRAINING RECEIVED IN VARIOUS PEDIATRIC SUBJECTS
(+ = requires more emphasis in training; - = requires less emphasis in training; 0 = emphasis satisfactory)

Medical school	Congenital anomalies	Breast feeding	Behavior problems	Rheumatic fever	Normal G and D*	Childhood viral dis.	Accident prevention	Kernicterus	Ill child care	Well child care
Washington	12	17	25	10	13	17	31	19	11	30
Seattle	2	3	7	1	3	2	10	3	1	3
Stanford	1	1	2	1	2	2	4	2	1	4
Oregon	1	1	0	3	2	3	0	4	0	1
Others	3	17	20†	19	15	30	11	18	12	21
			25	4	22	41	34	13	27	15

* Growth and development.

† Significantly more or less emphasis at the 1 per cent level.

‡ Significantly more or less emphasis at the 5 per cent level.

some of the smaller groups in the case of childhood virus diseases and accident prevention. On the other hand, while the graduates of other schools wanted more emphasis on behavior problems, normal growth and development, and well child care, Washington graduates appeared satisfied with these aspects of their training. Of particular significance are the responses judging adequacy of training in behavior problems. Desire for more training was indicated by the graduates of all medical schools other than Washington. Of interest also are the responses on congenital anomalies and rheumatic fever. The graduates of other medical schools indicated that these subjects had been over-emphasized in their training, while the responses of Washington graduates did not show significance in this direction. Finally, the responses on kernicterus are of special interest, since the Washington graduates indicated quite clearly that their training in this subject had been over-stressed, while the graduates of the other medical schools indicated, if anything, the need for more emphasis here, though this latter trend was not significant.

General characteristics of pediatric practice.—Table 5 lists various characteristics of practice which the Pediatrics Department was interested in obtaining. As can be seen, there is a marked degree of uniformity among the graduates of the different schools.

Table 6 shows problems in pediatrics which the physicians listed as being of importance. It is of interest to note that behavior problems are listed as first or second in order of importance in all categories.

Attitude of physicians toward problems of mental retardation.—The response to the first question (Table 7) as to whether the physician felt personally adequate to evaluate a mentally retarded child is of particular value. As the Table shows, the Washington graduates were the most modest in this respect, and, in fact, the percentage of Washington graduates who felt that they were personally able to evaluate a mentally retarded child was significantly lower than

that of "Others." The second item of interest is the question dealing with the familiarity of the physician with the programs at the institutions for mentally retarded. As can be seen, more of the Washington graduates felt themselves to be familiar with these programs. In fact, this difference was significant

when compared with the opinions of "Others."

Miscellaneous questions.—The Pediatrics Department was interested in finding out whether physicians interested in postgraduate work preferred coming to the Medical Center for such training, or whether they

TABLE 5
CHARACTERISTICS OF PEDIATRIC PRACTICE

Medical school	Per cent of pediatric patients who are well*	No. children with speech prob. seen in 1 yr.	No. mentally retarded children seen in 1 yr.	Per cent physicians interviewed using growth charts	Per cent physicians cooperating with social and public agencies	Per cent physicians who thought they could within their practices help prevent accidents
Washington	26	4	4	47	78	44
Creighton	35	2	2	64	75	36
St. Louis	39	1	2	50	72	56
Oregon	27	4	7	43	83	57
Others	27	4	2	66	64	31

* Physician's estimate.

TABLE 6
PROBLEMS OF IMPORTANCE IN PEDIATRICS
(Descending order of importance)

Most important problem in pediatrics	Overanxious mothers	Behavior	NGD*	Fevers	URI†	Allergies
Problems in pediatrics requiring research	Behavior	Viral infections	Rheumatic fever	Leukemia		
Problems most frequently brought up by mothers	Feeding	Behavior	URI	NGD	Infectious disease	Fevers
Problems in which more training required	Behavior	Fluid balance	NGD	Allergy	Infectious disease	Orthopedics

* NGD = Normal growth and development.

† URI = Upper respiratory infection.

TABLE 7
ATTITUDE ON THE PROBLEMS OF MENTAL RETARDATION AND CHILDHOOD DISCIPLINE PROBLEMS

Medical school	Per cent physicians who felt adequate to evaluate mentally retarded child	Per cent physicians who indicated familiarity with programs at institutions for mentally retarded	Per cent physicians of the opinion mentally retarded should not be committed	Per cent physicians of the opinion mentally retarded should be committed as soon as possible
Washington	11	53	26	39
Creighton	18	18	18	33
St. Louis	12	43	12	38
Oregon	16	43	16	50
Others	27*	22*	20	38

* Significantly different from Washington at better than the 5 per cent level.

would rather have traveling teams visit their localities. Over 75 per cent of the physicians interviewed desired postgraduate work in pediatrics, and over 90 per cent of these physicians preferred coming to the Medical Center for such work.

SUMMARY

A report has been made of a study with the following purposes: (a) to obtain an absolute and relative estimate of the University of Washington's School of Medicine graduates' opinions of their pediatric education; (b) to obtain information on various aspects of the general practitioner's pediat-

ric practice in Washington; (c) to obtain some information on the general practitioner's attitude toward the problem of mental retardation.

The methods used have been described, and the results obtained have been given and analyzed.

The responses of the physicians consulted indicate that in general they were interested in improving pediatric education for the students and continuing it for themselves. These findings can be used as guides at the University of Washington in planning graduate and postgraduate pediatric education and may have application elsewhere.

Measurement of Medical Students' Acceptance of Emotionally Ill Patients

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THEORETICAL CONSIDERATIONS

It has often been observed that medical students tend to react negatively to emotionally ill patients. Such generalized adverse attitudes toward patients, when they occur, are not simply chance happenings; they are potently motivated and can be understood in terms of their usefulness in handling anxiety. In this paper are considered some of the conditions for the learning of negative attitudes toward patients and some of the results of this learning.

In trying to make himself fit into a professional role, a doctor must come to terms with feelings of anxiety evoked by his patients. For the medical student this problem is especially acute, because his relative inexperience produces realistic feelings of inadequacy in dealing with patients. As the student must learn to protect himself from discomfort, the danger arises that the defenses he utilizes may not be compatible with the welfare of his patients or with a scientific approach to disease.

At some point in his training the medical student usually becomes aware of his difficulty in dealing with emotionally ill patients. In addition to irritability and frustration, he suffers from the consciously felt guilt that he is inadequate to understand or treat the emotionally ill. As his education progresses, such an appropriate reaction to his inadequacy is too easily and too often replaced by scorn. The replacement of guilt by scorn may be reinforced and even en-

couraged by the example of those teachers who, in their time, have "successfully" solved for themselves the same problem in the same manner. Teachers may also hand down to students tacit attitudes which pass for medical "knowledge" and which support feelings of scorn toward patients. Though scorn may contribute to the development of equanimity in the physician, there is a price paid for this comfort. The student tends to judge rather than evaluate, and he may come to look upon a patient's condition not as an illness with specific causes but as a somewhat immoral state for which the patient is to blame. To cite a common example, applying the term "crock" to emotionally ill patients expresses the student's judgment of the patient's untreatability, his rejection of responsibility for the patient, and his projection of blame for this sad state of affairs onto the patient.

Students learn very early to distinguish between emotionally ill patients and other patients. The "real" patients are those who are surgically, pharmacologically, or otherwise organically treatable. They present complaints which are supported by organic findings and are treatable by manipulation of the organic pathology. The student who measures his ability in terms of the clear-cut results he comes to expect in treating what he views as strictly organic illnesses is likely to find emotionally ill patients different, difficult, and upsetting. In comparing emotional illness with organic illness, an attractive but regrettable point of view is frequently adopted. The student acts as if he denies that an emotionally ill patient suffers from

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pathology as understandable and as lawful as an organic illness. The defense of denial obscures the etiological significance of heredity, constitutional factors, and life experiences in emotional illness and causes the student to ignore the laws of cause and effect which he respects in the rest of his medical training. The student is prevented from advancing his knowledge of either a particular patient or of emotional illness in general.

Anxiety induced by patients should spur students to constructive activity which involves closer attention to their part in the doctor-patient relationship. Self-examination requires the ability to tolerate discomfort. The medical student's tolerance for anxiety induced by emotionally ill patients is usually fragile and requires the support of his teachers. In their psychiatric training, students are given this support and asked to deal with patients and with their own feelings on a rational and relatively undefensive basis. The student's progress in learning psychiatry generally parallels his tolerance of anxiety induced by psychiatric patients. However, if he sees that his non-psychiatric instructors handle their anxiety by the expression of scorn or by denying that emotionally ill patients have illnesses with determinable causes, then the student is likely to find it unnecessary to handle his own anxiety any more appropriately.

The problems involved in helping students to use patient-induced anxiety constructively are embedded in the traditions of medical education and the professional culture of medical schools. However, such educational problems also have a scientific status, since learning processes, however complex, operate lawfully and are capable of scientific study. At the present time the behavioral sciences are not highly developed, but much is known which can guide further observational and experimental work. At several medical schools (1-4) programs of experimentation are now under way which, it is hoped, will facilitate and enrich further study of the diverse, complex problems involved in medical education. Though we may look ahead to greater and more precise

knowledge in the future, there are many immediate obstacles to the study of medical education. Some pertinent factors should be noted:

1. While bestowing serious and continued attention on those aspects of the curriculum dealing with established facts from basic and clinical sciences, medical schools have neglected to study the people involved in medical training. Such important topics as attitudes toward patients, emotional reactions to professional training, the ways in which a professional identification is developed, the motivations to study or teach medicine, and teacher-student relationships receive the most informal, unsystematized, and cursory consideration.

2. An investigation of the processes of medical education encounters the resistance of faculty and students alike. There is a particular reluctance to study the aspects of a doctor's role which are anxiety-reducing. Research into the student's development of a professional identification or the doctor's attitudes toward his patients may cause anxiety in much the same way as studying a patient's neurotic defenses is apt to arouse the patient's anxiety. To allow one's self and one's colleagues to be objects of investigation, especially with regard to personal feelings, requires a tolerance for anxiety—a tolerance which must be practiced before it can be taught.

3. It is not at all uncommon for practical-minded medical instructors to doubt that such "intangibles" as attitudes, values, feelings, and wishes can be studied objectively; and truly, the scientific study of these matters poses formidable methodological problems. Experimental techniques for quantifying and yet retaining the meaning of data relevant to human behavior have not been plentiful.

It is a primary purpose of this paper to acquaint more members of the medical profession with a methodological development which seems admirably suited to the study of attitudes, preferences, and the like; this is Stephenson's Q-technique.¹ In Q-tech-

¹ Readers who are interested in a comprehensive statement of the scope, theory, and operations of Q-technique should consult Stephenson's major work (5).

nique a population of statements (or other visual materials) are compared by subjects and arranged into a sequence along a specified dimension. For example, a variety of statements could be rank-ordered by subjects according to their characteristicness in describing something. The "object" described might be some aspect of the subjects themselves, some aspect of other persons, concepts, or any other matters to which the statements are appropriate. The experimenter devises statements and asks for descriptions of objects which fit the problem under investigation. Subjects' rankings of the statements represent their own subjective views in an objective form amenable to precise statistical analysis. Because the same statements are used in all cases, the similarity between descriptions given by the same or by different subjects can be measured using correlational procedures, and the determination of similar groups of descriptions accomplished through factor analysis. In general, most of the techniques of correlational and multivariate data analysis are applicable to data obtained with Q-technique.

To demonstrate the ease and statistical precision which Q-technique permits, an empirical test of the observation mentioned in the first statement of this report, that medical students are unfavorably disposed toward emotionally ill patients, is presented. The translation of this rather loosely worded generality into a more precise, testable hypothesis is achieved through the operations of Q-technique. Evidence of its correctness for the sample of students employed is provided by the data derived from these operations. Since these data are part of a series of studies of students' reactions to patients, the direction of subsequent steps in this investigation will be mentioned.

PROCEDURE

Initially, 63 statements descriptive of patients were assembled, numbered and typed on small cards.² Twenty-one of the statements referred to patients' attitudes toward

their doctor, 21 involved their attitudes toward their illness, and 21 embodied their attitudes toward treatment. The statements were chosen to cover a wide range of relevant attitudes. Toward the doctor, they included doubt (e.g., "May be skeptical about the ability of a young physician") and dependence (e.g., "Seeks special favors or attention from his physician"). Toward illness, the statements involved such categories as anxiety (e.g., "Over-emotional and excessively worried about any possibly severe aspects of his illness"), denial (e.g., "Tries to find some humor or lightness in his situation"), and secondary gain (e.g., "Inclined to use his symptoms to lighten or avoid his adult responsibilities"). Regarding treatment, the statements illustrated such categories as resistiveness (e.g., "May not wholeheartedly want to get well"), expectations (e.g., "A reasonably good result can be expected in this case"), and realism (e.g., "Able to assess realistically his symptoms, their import, and their treatment").

The content of the Q-statements allowed subjects considerable latitude in describing patients; for example, they might emphasize secondary gain in a patient, overdependence on the physician, indifference to his own illness, or various types of resistance to being helped. It is sufficient for the purposes of this study to note that the statements varied considerably and yet maintained direct relevance to the task of describing patients. The content of the statements will enter most significantly into subsequent analyses of these same data.

Twenty-two senior, male medical students from a class of 30 volunteered as subjects. Subjects used the Q-statements to describe, in turn, three types of patients: an ideal patient, a typically organically ill patient, and a typically emotionally ill patient presenting complaints similar to those of the organically ill patient. The descriptions were accomplished by sorting the 63 statements into eleven piles numbered from 1 to 11. The statement considered least characteristic of the patient to be described was placed in pile 1, and the statement most characteristic was placed in pile 11, the rest following the

² A complete list of these statements may be obtained from the authors upon request.

rule that the higher the number of the pile to which a statement was assigned, the more characteristic of the patient the statement was considered. Thus, in describing the ideal patient a subject might place the statement, "Does not really want to get well" in a low-numbered pile if he felt it were not characteristic, or in a high-numbered pile if he felt it were very characteristic, or around the middle pile if he were undecided about it. The number of statements in each of the eleven piles was specified so as to form the flattened normal distribution: 1, 3, 5, 7, 10, 11, 10, 7, 5, 3, 1. By requiring each subject to put the same number of statements in each pile, personal inclinations to overload or avoid using the extreme piles were eliminated. The sorting of the statements was

TABLE 1
MEAN CORRELATIONS AMONG THE
IDEAL (I), ORGANICALLY ILL (O),
AND EMOTIONALLY ILL (E) PATIENT
SORTS GIVEN BY EACH SUBJECT
(N = 22 subjects)

Sorts	Mean correlation	Standard deviation
r_{IO}	.41	.27
r_{IE}	-.33	.26
r_{OE}	.05	.32

forced in this way because individual differences in using the extremes were not considered important here.

A student's conception of each type of patient was finally represented by the pile numbers which he gave to the 63 statements. In describing the ideal patient he might have put statement 1 in pile 5, statement 2 in pile 1, and statement 3 in pile 9, whereas in describing the typical emotionally ill patient he might have distributed the first three statements with number 1 in pile 11, 2 in pile 9, and 3 in pile 3. Correlating the two arrays of pile numbers a student assigned to the statements in describing two of the patient types (i.e., as in the above example, 5 with 11, 1 with 9, 9 with 3, etc., through the 63 pairs covering all the statements) yielded a measure of the extent of

similarity between the student's conceptions of two of the patient types.

Correlations among the descriptions of the patient types given by each student provided the data of this study. Most relevant was the correlation and, hence, the similarity between a student's conception of the ideal patient and his conceptions of the typical organically ill and emotionally ill patients. These correlations (designated as r_{IO} to indicate the correlation between the ideal and organically ill patient, and r_{IE} to designate the correlation between the ideal and emotionally ill patient) could range from +1.00, indicating the maximum similarity between two descriptions, and -1.00, indicating maximum dissimilarity. The middle point, 0.00, would mean the two descriptions are not related either positively or negatively. For comparing subjects' descriptions of the ideal patient with their respective conceptions of the two typical patients, each subject provided his own frame of reference; the accuracy of validity with which a subject described an ideal patient or either typical patient was not an issue. The hypothesis regarding students' "negative" reactions to the emotionally ill can now be stated as follows: (a) subjects will evidence negative correlations between their ideal and emotionally ill patient sorts (i.e., a negative r_{IE}), and (b) they will evidence relatively lower (conceiving of a negative correlation as lower than a positive one) correlations between their ideal and emotionally ill patient sorts than between their ideal and organically ill patient sorts (i.e., r_{IE} less than r_{IO}).

RESULTS

Turning now to the substance of the present findings, Table 1 presents a summary of the correlations among the three sorts given by each subject.

As a group, the subjects described the emotionally ill patient as quite different from the ideal patient, whereas they described the organically ill patient as much

more like the ideal patient. In addition, this finding was remarkably consistent within the subject population. For each of the 22 students without exception, the correlation between the ideal and the emotionally ill patient sorts (r_{IE}) was lower than that between the ideal and the organically ill patient sorts (r_{IO}). This confirmation of both aspects of the hypothesis under investigation was sufficiently convincing as to make formal tests of significance unnecessary. Subjects clearly indicated their preference for organically ill patients as compared with emotionally ill patients.

DISCUSSION

These results empirically demonstrate one negative aspect of medical students' attitudes toward emotionally ill patients. An idea touched on earlier is also supported by these findings. The perspective to which students have been exposed in their psychiatric training apparently has not been incorporated to any great extent into the positive aspects of their conception of the ideal patient. Thus, all the medical students tested might be said to have viewed the emotionally ill patient from the point of view of the student of organic pathology who does not shift his perspective when he encounters emotional pathology. The individual variability indicated by the standard deviation measures indicated that students do differ in the degree of their negative reactions, or in the degree of their commitment to an organic model of illness. Although the present small sample prohibits a definitive statement, this variability did not appear to be related to general class standing or to grades in psychiatry courses.

It should be noted that the students who participated in this study were all enthusiastic about their psychiatric training. The seeming inconsistency between their enjoyment of psychiatry and their negative reactions toward emotionally ill patients is really not contradictory. The student's enthusiasm is related to learning psychiatry by lectures,

seminars, and working up patients, all situations in which intellectual and cognitive functions predominate so that he can relate to types of emotional illnesses which are fascinating from a distance. Anxiety mounts when students must assume greater responsibility for and closer contact with emotionally ill patients. Then the doctor-patient relationship becomes upsetting to the student and is apt to produce emotional responses. It is the domain of attitudes associated with disturbing feelings and emotions that Q-technique has sampled in this study.

Factor analytic methods make it possible in future work to deal with the content of students' descriptions of the three patient types in great detail, permitting an identification of typical characterizations of these patients which are shared by groups of students. Commonly shared attitudes will be studied in other students as they progress through medical school, and their occurrence compared among medical students, specialists in medicine, lay persons, etc.

SUMMARY

Since the doctor-patient relationship can cause anxiety for the medical student, he may try to protect himself from feeling this anxiety by employing such psychological defenses as projection and denial. While these defenses cause him to feel better, they result in professionally and scientifically inappropriate attitudes toward some patients. The study of students' and doctors' attitudes toward patients is made difficult by professional traditions, personal attitudes, and methodological problems. However, Q-technique offers an excellent means for investigating these as well as many other types of attitudes and values. By way of illustrating both the efficiency of this technique and one aspect of the negative attitudes under discussion here, it was found that all members of a sample of graduating medical students felt that a typical organically ill patient was closer to their ideal of an ideal patient than was a typical emotionally ill patient.

REFERENCES

1. DWYER, T. F., and ZINBERG, N. Psychiatry for Medical School Instructors. *J. M. Educ.*, 32:331-38, 1957.
2. GEE, H. H., and COWLES, J. T. (eds.). Association of American Medical Colleges Report of the Fourth Teaching Institute. *J. M. Educ.*, Vol. 32: No. 10, 1957.
3. MERTON, R. K.; READER, G. G.; and KENDALL, P. L. The Student Physician: Introductory Studies in the Sociology of Medical Education. Cambridge: Harvard University Press, 1957.
4. SASLOW, G., and MENSE, I. N. Medical Student Attitudes toward Behavior Disorders. *J. M. Educ.*, 28:37-42, 1953.
5. STEPHENSON, W. The Study of Behavior: Q-Technique and Its Methodology. Chicago: University of Chicago Press, 1953.

An Experiment in Teaching Human Embryology

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For many years we have been trying to teach the course in Embryology so that, when it was completed, we would feel that the several different systems had been coordinated in such a way that the student would leave the course with an idea of the harmonious union of all of the parts. One of the difficulties in achieving this objective was the fourth dimension, or time. Students have difficulty in grasping this concept—in relating the concomitant phases of development and in associating structure with time. In this course the standard equipment, chick and pig embryos, was used, but was supplemented with an extensive number of sections of human embryos and fetuses adequately described, illustrated, and catalogued, so that the student could follow any organ system through as many stages as desired. To coordinate histogenesis with morphogenesis, the students dissected fetuses from 3 to 7 months old, of which there was a sufficient supply to allow one fetus per two students. The presentation of the course was centered around these materials. Extensive use was made of lantern projection of serial sections, and all the best motion pictures on development of human embryos and fetuses were shown. Furthermore, since prospective medical practitioners are being taught, we tried to present as many anomalous conditions as possible. Through the cooperation of the Departments of Obstetrics and of Pathology a relatively good collection of abnormal embryos and fetuses has been obtained.

This year it was planned to conclude the Embryology course in the usual way by hav-

ing a practical laboratory examination on the identification of structures in selected sections of the chick and pig embryos as in the past, but instead the following procedure was adopted: About 1 week before the usual outline was distributed, the students were told that the method of appraising their laboratory work was being changed. On Monday morning of the last week the sheets of instructions were given out and the program listed below explained. The students were further told that they would be helped with embryologic materials, and, if they could get illustrative materials from other departments to supplement what we had, it was quite permissible. Each table of eight students would select a representative to draw by chance one of the topics listed.

Below is the list of Instructions given to the students.

EMBRYOLOGY DEMONSTRATIONS, 1958

- I. Each table will be responsible for the presentation of the ontogenesis of one or more of the systems from those listed below:
 1. Extraembryonic membranes; placenta, amnion, umbilical cord, and yolk sac.
 2. Digestive system as far as the diaphragm, including the face, oral cavity, hypophysis, pharyngeal derivatives, and respiratory system.
 3. Digestive system caudal to the diaphragm, including liver, pancreas, spleen, and mesenteries.
 4. Nervous system and skeletal system; brain, cerebral nerves, and skull.
 5. Nervous system and skeletal system; spinal cord, spinal nerves, sympathetic nervous system, suprarenal glands, vertebrae and ribs, girdles and appendages.
 6. Nervous system; sense organs—eye, ear, and olfactory organ.
 7. Cardiovascular system; heart, arteries, and veins.

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8. Urogenital system, urinary organs; mesonephros, metanephros, bladder.
 9. Urogenital system; reproductive organs, internal and external.
- II. The development of all of these systems must be presented adequately using:
1. Macroscopic materials to illustrate morphogenesis—human materials, models and dissections, including anomalies. Draw freely from all laboratory models and specimens.
 2. Microscopic materials to illustrate histogenesis. Human materials supplemented by slides from your own collection of chick and pig.
 3. Reprints of original articles illustrating the particular materials and anomalies. To be borrowed from file.
 4. Original labels, pictures, and any other materials which will help to explain the demonstrations.
- III. The materials are to be set up and demonstrated to the instructors and to other students in the class. The students will vote for the best demonstration, basing their opinion on accuracy, originality of presentation, and interest of each demonstration except their own. The instructors will grade the demonstrations on the same basis, and these grades from student and faculty will constitute the laboratory grade in Embryology.

During the week of the demonstration the students had to take a final laboratory quiz in Neuroanatomy on Tuesday afternoon, and we had not as yet finished lecturing on the Reproductive, Skeletal, Muscular, and Integumentary Systems. Thus, lectures and work in other courses were continuing up to the time of the demonstration, and, furthermore, the students had a final written examination in Embryology scheduled for the Monday following the Friday demonstration. On the morning of the demonstration further modification was given to the directions, by stating that the students would have 1 hour to put on the finishing touches, and then the demonstration would continue for 2 hours, during which time one member of each table would be on duty to answer any questions regarding the demonstration of his group.

The Embryology Laboratory in which the demonstration was given is a large light room, 50 ft. wide \times 75 ft. long \times 12 ft. high, within which there are ten large laboratory tables, each 12 ft. long \times 4 ft. wide \times 36 inches high; and one small table, 7 ft., 8 inches long, in which the other di-

mensions are as in the large tables. Each of the large tables seats eight students, with two drawers and one cupboard for each; and on top of each table there are two sets of electrical outlets, with four openings each. One Spencer lamp is shared by four students, leaving plenty of room for independent lamps. Thus, with nine projects, the four students at the center table allied themselves with one of the neighboring tables, and the center table and small table were used for overflow and storage of reprints, books, etc. The students supplied all their graphic material. There was no cost to the Anatomy Department for either art work or supplementary materials, and the department became the recipient of all drawings, models etc., when the demonstration was dismantled.

At the beginning of the demonstration, we started around the room examining the demonstration according to the definite outline (which follows below) and asking the students questions table by table. With the nine tables we had planned to spend 15 minutes per table, and our schedule worked out about like that. While we were going around the room, the students were going from table to table making their assessments of the various displays and entering their grades on the score card provided for that purpose. When completed the cards were signed and dropped into a ballot box. Later we added up the scores and used them with ours to grade the demonstrations. In the assay of the work of each table we judged the performance on the bases given in the following outline, which is a record of the performance of the table which both students and faculty considered the best demonstration.

REVIEW OF THE JUDGING OF A SAMPLE DEMONSTRATION

Topic: Fetal membranes, including amnion, yolk sac, umbilical cord and placenta. Nine students participating, who had their premedical training at the following colleges: Duke, Eastern Mennonite, Johns Hopkins, Richmond, Roanoke, and University of Virginia. In the following outline the arabic numeral indicates the materials available in the laboratory; the small letter indicates how this material was

used; and the asterisks indicate originality of presentation.

1. Embryos and fetuses in fetal membranes and in utero, normal and abnormal.
 - a) Used appropriately
 - * Backboard of plasterboard formed the central part of this exhibit. On it were drawings of stages in the early development of the membranes, each connected throughout its development with the next stage by a ribbon of specific color: e.g., blue for amnion, orange for chorion and placenta, yellow for yolk sac, and red for umbilical cord.
2. Sections of fetal membranes from 13 days to term.
 - a) Utilised in relation to displays and drawings on backboard.
3. Lantern slides of early human cleavage, Hertig-Rock embryos, etc.
 - * Utilised in homemade viewing box as start of demonstration.
4. Models of painted plasticine of Hertig-Rock and Goodwin embryos, originals made from photographs by J. E. Kindred.
 - a) Utilised in relation to toto mounts, drawings, and photographs.
 - * Fresh placenta—to show appearance in fresh condition—obtained night before from Obstetric delivery room.
5. Anomalies of fetal membranes displayed with pictures and literature; knots and twists of umbilical cord; strangulation of fetus by cord; fetus papyraceus and placenta of this fetus and of normal living twin; mummified fetus; lithopedion and x-ray of same; larger than term fetus in extrauterine pregnancy; hydramnios in 10-mm. embryo; tubal pregnancies of various kinds; abnormal placentas.
 - a) Used appropriately with literature and labels.
 - * Lantern slides of circulation in placenta and anomalies of placenta etc., mounted on Speed-o-matic viewer.
 - * Drawings of placenta and uterine relations.

ESSAY BY THE STUDENTS WHO SET UP THIS DEMONSTRATION

"Our table drew the subject of fetal membranes; the placenta, yolk sac, amnion, and umbilical cord. A chairman for our particular group of nine persons was chosen, and a meeting was held to organize the work to be done. We decided to divide ourselves into four groups, one group to collect macroscopic material, another group to set up and organize the microscopic display, another group to collect reproductions and printed material on our subject, and the last group to look up and organize the anomalies. Before we adjourned our meeting, it was decided that each of us would not only attend to our own particular subject, but would be of help or use to the other groups; and also that another meeting would be held later to see how each group was coming along with its work and to start coordinating it into a demonstration that would have simplicity, meaning and interest.

"Each group went right to work, and after 2 days we met again to start coordinating the material. Obviously much of the material had to be eliminated in order to keep within certain limits of interest and

in order not to make the demonstration too lengthy. The group working on the microscopic material had already selected eight slides depicting various stages of the embryo that demonstrated clearly the development and growth of the fetal membranes. They had also written cards to briefly explain the slide or to note some particular part of the slide. Pictures were drawn to be used in concordance with the microscopic part of the demonstration, which tried in step-wise fashion to simply explain the development and growth of the fetal membranes from their first appearance to the fully grown membrane.

"Macroscopic specimens were collected, and only the ones which were well preserved and easily demonstrable were used. Besides normal specimens, the anomalous specimens were also collected to be used in the demonstration of anomalies. Pictures were also drawn, to be used with macroscopic specimens, and cards with brief explanations of the anomalies were written to accompany each picture.

"Printed material and reproductions were plentiful, and from them three articles of special interest were chosen to highlight this portion of the demonstration.

"As we gathered the material that was going to be used, one member of our group thought of a way in which to present the demonstration by the use of crepe paper streamers of four different colors representing each of the fetal membranes. We used this idea and began setting up the demonstration. The first part was microscopic slides used to introduce the development of the membranes, at the end of which was a human embryo specimen to show the fully developed membranes with a brief explanation of the function of each.

"The printed material was laid out for inspection, and the gross specimens of anomalies were arranged beneath the corresponding pictures and explanation of each of them.

"At the end of the demonstration, it seemed appropriate to display a diagram of placental circulation, since this is actually the life line of the embryo."

We had expected something not quite so elaborate and were quite surprised at the results. One of the tables had an excellent series of painted plasticine models illustrating four stages in the development of the stomach, duodenum, pancreas, and spleen; another had an excellent figure portraying the fate of the primitive nerves in relation to muscles and skin, made with threads on a montage; another illustrated the anomalies of heart development to the accompaniment of a long playing record giving forth abnormal heart sounds; and another had plastic models of the ear and nose. All the groups used microscopes, of which there were 90 in use at one time. For the larger sections, 2 X 2-in. viewers or hand lenses were used to show morphology and histogenesis.

We have learned from this demonstration that students can do more than is routinely expected of them if given the materials to work with, proper guidance, an incentive of competition, and time in which to perform the task assigned. The morale of the 1st-year students was lifted perceptibly, and the demonstration provided a good field for a review for the final written examination which came on the Monday morning following the demonstration. (They did well in the examination.)

At the request of the Dean, the demonstration was left up in the Embryology laboratory for about 6 weeks following the end of the course. It has been used as a background for the review of Embryology in the first part of the course in Obstetrics given to the 2d-year students. It has also been

used as a background for several lectures on Human Embryology given to the nurses. Members of the faculty from other departments in the Medical School and University at large have had only praise for the efforts of the students. Although we have had to take down some of the microscopes, one or two have been kept, together with the slides and explanatory cards at each display, so that residents can review the embryologic aspects of their specialties.¹

¹ We have on file the outlines of the material used in the course, which was based upon an abridgement and partial revision of Jordan and Kindred's "Textbook of Embryology"; the contents of each of the nine demonstrations; the essays of the students; still pictures and motion pictures taken during and after the demonstration, colored and black and white. We will be glad to lend these to any interested parties in the hope that the cause of teaching Embryology in the medical schools of the United States will be furthered.

MEDICAL EDUCATION FORUM

Editorial

THE SUPPLY OF PHYSICIANS

When conversations lag in faculty rooms, a likely subject for a brisk discussion concerns the present and future supply of physicians. In the United States today, some of the Southern and Rocky Mountain states present serious shortages of physicians. In other parts of the country, the supply seems to be more satisfactory. New medical schools are blooming in several Southern states, and programs are at least under consideration in Arizona and New Mexico. There has been a resurgence of interest in the 2-year medical school.

The supply of physicians in other countries varies greatly. A majority of the countries in the Middle East and the Far East have serious shortages. Recent reports from Canada and England suggest that there is, or will be, an excess of doctors in these countries. Unquestionably, there is a pronounced over-supply of physicians in West Germany, to a degree where medical manpower must seek other gainful occupations. It will be interesting to follow the effect of the situation in West Germany, England, and Canada on the number of physicians from these countries seeking licensure in the United States.

For the United States, the major problem seems to be the challenge of the projected population increases. The A.A.M.C. has expressed its concern in this matter. The problem of balancing the value of a continued expansion of existing schools as against the desirability of opening new schools is a thorny one. The three "P's"—faculty, finances, and facilities loom large in any consideration. Granted that there are perplexing problems relating to the maintenance of an adequate supply of physicians, it is obvious that this is an area where medical educators must demonstrate vigorous leadership. If it should transpire that the present and future needs for physicians are not met, the blame will be laid at the door of medical education.

JOHN Z. BOWERS, M.D.

Addresses

COMMENCEMENT ADDRESS*

WILLARD C. RAPPLEYE†

Commencement is an appropriate designation of this occasion, because it represents not the end of education but really the beginning of a career. You are entering the profession at one of the most interesting and stimulating periods of its long evolution over many centuries.

Since the dawn of history there has been a thread of continuous endeavor in every society to cure the sick, treat the injured, advance knowledge regarding health, and train practitioners of the healing arts. You are joining a profession which has been a vital part of human life since the beginning. It has survived the rise and fall of empires and ignored the boundaries of nations as well as the edicts of kings and dictators. It has always been dedicated to one of the few universal, world-wide needs of mankind, to the service of which it has been devoted since the days of Hippocrates and his predecessors as far back as Hammurabi in 2250 B.C.

It would be presumptuous and unnecessary for me even to attempt any exposition of the modern scientific problems of medicine because you are just emerging from 4 years of saturated study of these very questions. No one should be more aware than you of the important results of the control and cure of infectious diseases and the profound effect that these have had upon childhood and adolescence. Partly as a consequence of the control of the disorders of young people, there has been a striking shift in the age composition of the population which has brought greater emphasis than heretofore on the chronic diseases of middle and late life. Remarkable advances in the treatment of cardiovascular disorders, the recent successes in combatting poliomyelitis, the growing promise of controlling and eventually curing certain forms of malignancy, better understanding of the mechanisms that give rise to congenital defects, mental and chemical as well as anatomical, the whole new concept of human genetics, new understanding of mental and emotional disorders, and the great progress in physical medicine and rehabilitation, as illustrations, are having a marked impact on the very nature of medical care and the responsibilities of the physician.

You who are just completing your scientific training cannot be fully aware of the great strides that have occurred in your lifetime. The chemotherapeutic agents, the antibiotics, the growth of knowledge of immunology and virology, the appreciation of the basic elements of nutrition, the contributions of endocrinology, the newer techniques of lung and heart surgery (practically unknown just a few years ago), the up-to-date methods of treating many heart disorders previously regarded as hopeless, the importance of anesthesiology in modern surgery are only a few of the noteworthy advances made in the purely scientific

* Delivered at New York Medical College on May 27, 1958.

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phases of our profession. There is nothing I can add today to these aspects of medical science and patient care in which you have had such an excellent preparation.

The phenomenal growth of new knowledge during recent decades has often been emphasized to you. There is reason to believe, however, that these unprecedented advances are merely a prologue to what is coming in the near future as new discoveries and the application of the basic sciences promise even wider horizons and deeper challenges. These developments unquestionably will require that the physician of the future remain a student throughout his entire life if he is to meet the needs of his patients and of the community which he will serve. Your basic education in these fundamental sciences and clinical medicine and the understanding of the opportunities, purposes, and ideals of the medical profession will serve as a solid foundation for your future. You have by now acquired habits and methods of study that will permit you to continue your own self-education.

The emphasis now being placed in modern medical education upon learning by the student rather than teaching by the faculty has prepared you to keep abreast of the demands ahead. The one thing of which you can be sure is that changes will occur in methods, procedures, techniques, and skills. These are characteristic of progress. Evolution itself is inevitable, but it does not follow that because a program or technique is new that it necessarily is better. Sound evolution must be based on proved practice and sound principles. One of your prime responsibilities will be to meet the new conditions in the scientific developments of our profession.

There is a feature of medicine, other than the purely scientific and clinical, that will confront you shortly and that is going to be of greater significance to you than it has been to the present and past members of the profession. It is the ramifications and effects of the broad social and economic conditions that are now evident in our society. The American people are convinced of the value of adequate medical care and are determined that the results of modern scientific knowledge shall be made available to the entire population in some form or another. Medicine has accepted, or had thrust upon it, community responsibilities of the broadest character. Medical instruction today recognizes and is attempting to deal with the social, economic, emotional, and environmental elements of illness and incapacity of individuals. These considerations need not and cannot substitute for a thorough grounding in the basic scientific disciplines, but they should supplement and vitalize that education. The rapid evolution of this concept in the United States has placed a new obligation upon the medical profession and the educational institutions of the country to produce sufficient numbers of necessary personnel of all kinds to make possible the maintenance and improvement of health for everyone in the country.

As in the scientific world, these changes are now evident, and they are coming at great speed. An example of this trend is the fact that there are now over 126,000,000 persons in the United States who have some degree of voluntary prepayment hospital and medical care insurance. The number has increased nearly 80,000,000 in the last 10 years. The phenomenon is already having a pronounced effect on medical practice whether it is in the hospital, office, or the home. It has introduced a new element into American medicine, namely, a third person in the form of the insurance carrier who now for a majority of the population serves as a financial agent between the doctor and the patient. Here again the profession must recognize and adapt itself to these new and different conditions, while at the same time making every effort to safeguard the high quality of medical care that has been developed in this country during the last 4 or 5 decades.

Achieving an appropriate balance between the quantity and quality of medical care in a period of unparalleled scientific advance and in the face of increasingly popular demands that all of the people should have the benefits of modern research and professional services is probably the most difficult and urgent problem confronting the medical and allied professions today. The over-all challenge is to devise ways and means of providing and integrating the required facilities, qualified personnel, and necessary financial support in order to apply present and new knowledge to the needs of patients and communities in the future immediately ahead.

Many of the problems which American medicine, medical education, and the organized profession face must be considered in the broad context and perspective of our current social, economic, political, and educational institutions and thinking. As remarked earlier, change and evolution are inevitable, and we must learn to adapt ourselves to these new circumstances without surrendering fundamental principles, high standards of competence, and our obligations as a profession.

It might be well to call attention specifically to a few of these conditions which we are so likely to overlook as significant trends. The high and growing degree of urbanization, the restless mobility of the population, now at the highest level in the history of the country, the accelerating growth of industrialization, the newer methods of communication and transportation, the aging of the population with a consequent increase in chronic diseases and the disabilities of later life, the ever-expanding complexity of scientific knowledge with necessary specialization and recognition that no single individual can master all fields of medicine, the inevitable evolution of group practice, the conduct of government largely by pressure groups and the intrusion of public agencies in all our daily activities, the emphasis on preventive medicine, mental disorders, rehabilitation, and the changing pattern of family life itself—these and many other features of present-day life can only be cited to indicate the variety and complexity of these factors which have an important bearing on the forms and methods by which medical services are to be rendered.

The extension in a variety of ways of health services as fringe benefits of labor union contracts only points up another major consumer group that is having an ever-growing voice in determining how medicine is to be practiced, where, and by whom. The action taken in recent weeks by the regulatory agency of one of the large Eastern states to control the expenditures of prepayment hospital insurance benefits by including many professional determinations is another feature of present-day control and direction by external forces dealing with fundamental medical problems.

Inasmuch as the objectives of medical care can be attained only by trained personnel, the educational features of medicine, including the continuation of education after graduation, become paramount. The keystone in the arch of adequate health services is the physician. There is no substitute for him. Hence, medical education itself is the concern of every segment of our national economy. That is why in our whole training program we try to select self-starting, self-directing, and self-propelling students who have a broad cultural background rather than a mere concentration in the sciences and who, under guidance and supervision of skilled teachers, may secure the elements of a real education which, at the professional level, must always be self-education. It is because of these very problems of our social and economic changes and other vital influences in the determination of the future of medical services, hospital care, research, and public responsibility that we support so vigorously the concept of a broad cultural education for the doctor of the future, not merely the

training of technicians and craftsmen. Nothing would be further from the needs of American medicine and the public which it serves than a narrow, purely scientific training of the doctor, the scientist, or the medical teacher.

In a country like our own, with its rapidly growing population, the increasing average life span, the rising standards of living, and the awakened public recognition of the value and benefits of modern medicine, there arises insistent demand for more health services, more trained personnel, more physicians, more diagnostic and hospital facilities, and the required features of adequate health care. This is part of the recognition of the fact that the strength, vitality, and security of the country are dependent in no small measure upon the well being, health, and vigor of the population. The more people that are benefiting from the better health services that are available, the greater will be the appetite and demand for them and the increasing willingness for the American people to insist upon and pay for these essential requirements in one form or another.

As you go into your professional career, you will realize the necessity of thinking for yourself, of the values of initiative, imagination, intellectual curiosity, scientific critique and resourcefulness, the necessity of facing alternatives and making decisions and, above all, of understanding people and not just their diseases alone. The measure of your success will depend upon your performance, your judgment, and intellectual self-reliance which constitute the intangibles and the imponderables that mark the true physician.

These are a few lively topics for your immediate consideration and will have a vital influence in your future. May I recall that at the Congress on Medical Education and Licensure held in Chicago only a few weeks ago there was presented a series of topics and discussions by leaders in business, industry, economics, sociology, labor, government, hospitals, insurance companies, universities, foundations, the Farm Bureau, members of Congress, and the medical profession and the medical schools. This was the first time in the 54 years since the Council on Medical Education and Hospitals was created in 1904 that such a program was attempted. The topics and formal papers presented by economists, sociologists, business leaders, government officials, labor union officers, and others dealt with many of the questions to which I have made such brief reference today.

The impact of the socio-economic and community factors is readily felt by physicians in practice whether in hospitals, group practice, insurance medicine, labor unions, industry, or family practice. Most of the physicians today are aware of the changes that are going on with such great rapidity in our environment and the adjustments which they are being required to make, often in confusion, frustration, anxiety, and sometimes in unwise actions. Nevertheless, the needs of patients and their families in matters of health, sickness, and disability are still, and are likely to remain, personal and individual. It is this very element of medical care that epitomizes the basic concept of our American way of life, the essence itself of true democracy. There can never be a substitute for the well qualified physician who can interpret these factors in everyday living which have a bearing on the diagnosis, treatment, and prevention of illness in the individual patient and family.

As a physician, you will be called upon and must be competent to interpret the reaction and adaptation of individuals to the many variable forces in the community, the family, and the conditions of employment. All of these factors need interpretation as they bear upon or modify the health problems of the individual and the family. These community-wide developments, on which I am endeavoring today to place particular emphasis as you cross the threshold of responsibility as a full-fledged physician, represent a new obligation

upon you. Be prepared and eager to participate in sound health programs in cooperation with lay organizations, government, labor unions, industry, schools, and other consumer groups designed and often dedicated in their own way to the welfare of the community. The medical profession and the medical schools occupy a central position in the guidance of adequate medical services of every kind and description for the entire population. It is important that they understand and interpret these changes and that the individual doctor do his full part not only as a technically trained expert but as an advisor, leader, and consultant.

It is this broad concept of medical care in the future that we bequeath to you. The new generation of physicians with your superior knowledge of many of the features of scientific as well as community responsibilities will command and deserve the high esteem and confidence which medicine has justly earned. May you go forward in the new era of American medicine to enjoy the satisfactions, the success, and the happiness which has come to generations of your predecessors.

A FAMILY HEALTH SERVICE AS A TEACHING PROGRAM*

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If an actual teaching program was intended for presentation today, I am here under false colors. But the Montefiore Hospital does have a Family Health Service in operation. I should like to present the methodology and design of that Family Health Service and its *suitability* as a program for teaching medical students.

The Family Health Maintenance Demonstration (3, 6) is jointly sponsored by the Community Service Society, The Columbia University College of Physicians and Surgeons, and the Montefiore Hospital, all of New York City. The Demonstration has been in operation since 1950 and will go on until at least 1958. It was constructed to fulfill several objectives and consequently has research, demonstration, and service aspects. About 150 families, selected at random from those families enrolled in the Health Insurance Plan of Greater New York (1) and receiving service from the Montefiore Hospital Medical Group, represent the study families. An equal number of matched control families provide information for comparison. The Family Health Maintenance Demonstration came into being to "determine what services could reasonably be added to a comprehensive medical care program which would result in favorably influencing the health of the families concerned" (3).

All the medical services to which the family is entitled by the Health Insurance Plan contract is provided through a health team composed of a physician, social worker, and public health nurse. Where more specialized care is needed, patients are referred to the consultant specialists of the Medical Group. Medical care in home, office, and hospital is provided in the contract.

This health team is the key teaching device to which I shall return after describing briefly some other aspects of the program.

As part of the service function and to carry out the research design, a baseline evaluation

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of each family is made. This includes a Cornell Medical Index, physical examination, laboratory tests, scheduled interview with a social worker, home visit from a public health nurse (who also helps the family complete a housing and nutritional questionnaire) and a Thematic Apperception Test (or Children's Apperception Test for children between 6-16). A final evaluation of these families after 4 years of study, together with similar evaluation information from control families, will furnish raw material for answering questions about the emotional health of families and whether preventive measures can be applied to reduce emotional breakdown and mental disease.

During the years of study, the preventive measures are applied through individual conferences and group education meetings.

The health team confers weekly on a regularly scheduled basis. At the weekly conferences, the evaluations are discussed and a health plan proposed for the families under study. Then family conferences (the health team together with parents) are held at which these plans are presented and efforts made to enlist the family's cooperation. Where treatment is necessary, or some interviews as preventive measures, the team member in whose area of competence the service falls assumes responsibility. If the matter is in a "gray" or overlapping area (such as child-rearing practices), the team member with whom the family member has developed the best rapport will assume responsibility.

The family is looked after by this health team, year in and year out—annual physical examinations, home or office calls for sickness, hospitalized illness, emotional crises, blessed events and catastrophes.

The health team has a band of consultants in the social field, even as the medical specialists furnish consultations in the medical field. A psychiatrist, psychologist, social scientist, and health educator serve in this capacity.

The psychologist gives the tests and furnishes interpretations. The social scientist observes and records the team interaction and reports the acceptability of the program to patients, as well as the perceived value to them. The health educator advises on group education program, leadership, and materials.

The psychiatrist provides weekly conferences to the individual team members, giving orientation in the field, discussing psychodynamics in general as well as particular cases. Because of this supervisory character, the team can engage in offering help and support to family members during emotional crises, as well as recognize and redirect, if possible, *potential* crises. During the years of observation, it is also possible to shore up strengths where they exist as an additional preventive service.

The teaching method recommended is the assignment of a student to a team where he will assume responsibility for managing a small number of families. He would work as the physician team member, with the nurse and social worker, under the supervision of an internist organically assigned to the team who would be his preceptor. The values of such a teaching device seem clear.

1. A medical student would be in a position to learn about family practice in conjunction with the professional workers who can augment the failing structure of family doctoring.

The change in medical practice occasioned by the new knowledge and technology of medicine, the increasing growth of specialization, together with the professionally and financially unrewarding nature of general practice have reduced general practitioners in numbers (19). Because general practice and family practice have been synonymous, the decline in general practice has been accompanied by a decline in family practice. The scientific trend of mod-

ern medical education has tended to intensify the loss by depriving the more scientifically trained specialists of knowledge of or interest in family and social problems. While this gap in education is being corrected to some degree, the lack of an organized structure in medicine makes it difficult for an internist or pediatrician to play this role of family practitioner. By this I mean the economic problems inherent in the referral system and the cost of specialized diagnostic and therapeutic procedures. Group practice may help, especially group practice with prepayment, but the interest in the emotional life of the family and social relationship of the family members is a rapidly growing specialty of its own.

The social worker and public health nurse have established professional competency in this area of family life, and it seems entirely sensible and feasible to incorporate them into a team practice relationship, where such a structure is possible, offering the old physician a new role rather than hope that medical schools and society will provide a brand new type of physician.

2. The student will be able to establish a learning relationship with families not otherwise possible.

The out-patient clinic medical practice on which so much of medical education was built is rapidly succumbing to medical insurance which channels patients into the physician's private office, and to high cost of operation which makes a visit to a doctor's office cheaper than a clinic visit. "Teaching material," as the clinic patient was customarily described, is disappearing. The insured patient in a prepayment group practice as described here is the modern counterpart of the clinic patient. Of course, the patient must be invited to cooperate in such a program and must be aware of the fact that he is being examined and treated by a medical student under his own physician's care.

The paying patient in this type of practice offers students advantages in learning about people and the course of disease that the clinic patient lacked. The student deals with "normal" families, not economically marginal families or agency referrals. These are everyday people with everyday problems, and it will be a social education of great worth for students to see that most families have emotional problems and difficulties, not just the drags and sweepings. It will be of enormous value for students to learn that families meet problems, and cope with them, sometimes without any help from doctors or other professional people. The magnitude of this discovery, in instillation of humility alone, cannot be overestimated.

3. The student will learn about the role of professional colleagues.

It may not be presumptuous to emphasize at this point the necessity under any circumstances of providing a bibliographical background in social work (8, 10, 18), or public health nursing (7), as well as a bibliographical background in cultural (14), sociological (11, 12), and social medicine in general (13, 15-17). At any rate, the basis of cooperation in a health team is an appreciation and understanding of the role and competence of one's colleagues. Eaton (4) in his categorical description of the democratic team structure makes this a *sine qua non*. The respect and understanding generated in team activity will influence the student's approach to medical practice and his own future role.

In learning through actual observation of the procedure, the student will get a real picture of what a social worker is and does, what a public health nurse is and does. This will help him see the community agency in perspective, too. He will learn how community agencies operate, what their function is, what part lay people serve in quasi-medical agencies, and what part the informed public service of a physician can play in such community

agencies. All this will come as a natural result of an experience with one of his own patients not as a lesson to be listened to.

The other professional colleagues will be seen in operation, also. The appropriate setting for observing and participating in the work of the specialists is to use the consultants in surgery, obstetrics, dermatology, for example, in consultation and care of his own patients.

4. Prevention has a part to play in this teaching program.

Preventive medicine teaching will be enhanced because it will be practiced in a natural way. We pay only lip service to preventive medicine, I'm afraid, when it is taught in a separate course, and carefully kept out of the medicine, surgery, obstetrics courses. The dramatic competition with fellow students to diagnose an obscure disease, or catch an instructor out on an obscure symptom far overshadows any teaching about "health." Preventive medicine needs a dramatic framework, too. When a family becomes an unfolding tapestry of events, a chronicle in which sickness and health play a part, sickness and health are of equal interest.

5. The student will have a broad continuing responsibility for family care.

In many family service programs, the student cannot establish a diagnosis or offer treatment, or consult with appropriate specialists. He is essentially a witness and observer. This becomes dull, and eventually alienates him from the philosophy the program represents. Unless he can be an active participant, the program is not appealing.

Not the least of the good effects of working on a service health team is the confidence and support the student gains from the family. I suspect that in programs where the student is a witness, the family tends to look after him as they would after a not quite bright child. Where the student has responsibility and authority, I think the family adopts the same cheerful submissiveness or acquiescence that characterizes the successful doctor-patient relationship.

6. Medical students need preceptorship in preparation for practice.

"In medical training it has sometimes been as though Mother Church, when sending a man to the mission field in Darkest Africa, has trained him only in the finest points of theology, while omitting altogether to discuss the people he would meet in his new parish, their beliefs and habits and their occasional primitive urge to eat missionaries" (2).

The recent Education Issue of *The Lancet* (5, 9) considers several facets of the problem. Hospital populations are not adequate samples of the universe, and it is questionable whether hospital cases represent a proper exposure in preparation for practice. However, a random sample of the population as a teaching laboratory is hard to come by unless you have access to a practice. A physician's practice in the team setting drawn from a general population, is ideal for teaching. And, little criticism can be directed at a qualified internist as an inadequately prepared teacher.

7. However, even this health team approach, integrated with group practice, may not be enough. As a teaching device it should be anchored in a teaching program that recognizes community responsibility. It is my feeling that medical schools must demonstrate, in their own practice, the practice expected of graduates. The teaching hospital should be developing new ways of meeting patient needs, showing concern for human values in patient care, experimenting with economic solutions to the patient's problems of obtaining modern high quality medical care. Such a teaching institution must not push the economic and social problems of patient care into the background and temporize by "mentioning" the

problem in a lecture or two. Medical schools and associated hospitals should not timidly approach new ideas, but rather boldly initiate necessary programs.

What is the object of such a radical reorganization of clinical teaching? It is to provide medical students with understanding of sickness in modern terms, the knowledge of the onset and course of disease in a human being. This is a basic object of all medical school experiences. It provides some understanding of human beings, too, in whom sickness is an event, merely one event, in a life. Other events occur and can be seen, too. Ultimately, a teaching effort of this kind may help to make physicians health-minded and preventive medicine-minded, because it won't be sickness that brings a patient to the doctor, it will be a *relationship*.

REFERENCES

1. BAEHR, G. The Health Insurance Plan of Greater New York. J.A.M.A., 143:637, 1950.
2. BROTHERSTON, J. H. F. Social Medicine and General Practice. Univ. Quart., 3:769, 1949.
3. CHEREKASKY, M. The Family Health Maintenance Demonstration. In: Research in Public Health, Milbank Memorial Fund, New York, 1952.
4. EATON, J. Social Processes of Professional Teamwork. Am. Soc. Rev., 16:707, 1951.
5. Editorial: Ideas and Ideals. Lancet, 271:388, 1956.
6. Family Health Maintenance Demonstration. Milbank Memorial Fund, New York, 1952.
7. FREEMAN, R. B. Public Health Nursing Practice. Philadelphia: Saunders, 1951.
8. GOLDSTINE, D. (ed.). Readings in the Theory and Practice of Medical Case Work. Chicago: Univ. of Chicago Press, 1954.
9. HODGKIN, K. Hospital Training as Preparation for General Practice. Lancet, 271:372, 1956.
10. KASIR, C. (ed.). Principles and Techniques of Social Casework. Family Service Assoc., New York, 1950.
11. PARSONS, T. The Case of Modern Medical Practice. In: The Social System. Glencoe, Illinois: Free Press, 1951.
12. PAUL, B. (ed.). Health, Culture and Community. New York: Russell Sage, 1955.
13. SAND, R. The Advance to Social Medicine. London: Staples, 1952.
14. SAUNDERS, L. Cultural Factors and Medical Care. New York: Russell Sage, 1954.
15. SICKIST, H. Man and Medicine. New York: Norton, 1932.
16. ———. Civilization and Disease. Ithaca: Cornell, 1944.
17. STERN, B. Society and Medical Progress. Princeton: Princeton Univ. Press, 1941.
18. TOWLE, C. Common Human Needs. Am. Assoc. Social Workers, New York, 1952.
19. WEISKOTTEN, H. G. Trends in Specialization. J.A.M.A., 160:1303, 1956.

Letters to the Editor

During the past 15 years I have been closely associated with the teaching of surgical residents—or have been a resident myself—at a large municipal hospital and a renowned clinic. This close association with residents has enabled me to see an insidious change in the professional attitude of the surgical residents to their specialty.

Although comparisons are odious, nevertheless, they are inevitable when one is observing the situations which surround us. Unfortunately, the present-day surgical resident has lost the intangible attribute of a surgeon, an attribute which develops from an intellectual stimulus either arising from within the individual or implanted as a restless seed in a fertile brain by a learned or distinguished elder colleague who has become an inspiration to the resident. The present-day resident is looking forward to the day when his earning capacity is greatly enhanced, and this attitude causes him to sacrifice much of the precious knowledge which is at hand during his training period. He is looking so far ahead that his present assignment is either a tedium or a means to an end.

Fortunately or unfortunately, most residents today are married, with a growing family to consider. They are shackled with family responsibilities which inevitably distract them or destroy that peace of mind which enables the avid student to devote 100 per cent of his energy to the acquisition of knowledge. I am not against marriage for residents: I am merely expressing an opinion from observation. All of us have heard residents receive messages in the operating room to call their homes or their wives—or else, some similar situation is observed. I cannot go on record as stating that unmarried residents are preferable to married ones. All that can be said, in general, is that a mind free from extraneous problems can concentrate on the immediate learning at hand.

There is no doubt that the young resident is alert and adept in the operating room and in the wards with his intravenous needle and spinal puncture technique. He is prompt in the operating theatre and avid to grasp the scalpel. He develops small intriguing techniques which he has seen someone use or another surgeon employ—techniques which have undoubtedly captivated his fancy. Preoperative care is good, but postoperative follow-up is shabby. When the clock reaches 5:00 P.M. he will leave the ward and sign out to the man covering for the evening. It is unusual for a resident to go to the operating room on his evening off if a patient from his service is to be subjected to an emergency operation. He is not completely neglectful, however, because the next morning he will ask the intern on duty about the operative findings. This knowledge, nevertheless, is not the same as that gained at first-hand in the operating room; it is second-hand learning. An analogy would be the newspaper reporter who is sent to interview the president. Instead of seeing the president he is met by his secretary who says, "You don't have to see the president, I can tell you what you want to know." The secretary then proceeds to tell the interviewer all about the president—even to the minutest detail, the interviewer going away satisfied with a detailed account of the president. It satisfies his need; but still he has never met the president.

No matter how excellent the resident's operative technique, he must realize that surgery goes beyond the operating table. Technique is important but is not the "be all and end all"

of surgical perfection. I have repeated again and again to the residents that the essential ingredients of a surgeon are the *mental*, the *moral*, and the *mechanical* attributes. The first has to do with *knowledge*, the second infers *judgment*, and the last is *operative technique* as manifested in manual dexterity. The greatest of these is *judgment*; but happy and fortunate, indeed, is he who has acquired all three in equal degrees. This trinity of perfections should be the goal of all surgical residents.

Any resident who has fallen under the aegis of a mature surgeon who has instilled these virtues in his soul has acquired a priceless heritage which can never be destroyed.

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NEW BOOKS

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Book Review Editor

Reviews

The Student Life (The Philosophy of Sir William Osler). RICHARD E. VERNEY (ed.). Edinburgh and London: E. and S. Livingstone, Limited. (Distributed by Williams and Wilkins Co., Baltimore.) 1957. 204 pp. \$4.00.

Here, in a very readable small book, are contained the highlights from the prolific pen of Sir William Osler. Dr. Verney, a keen student of the works of Osler, has compiled in an anthology many of the well known as well as some of the lesser known works of Osler. He has exercised editorial rights in altering slightly some of Osler's words in the interest of bringing them up to date.

In all, 28 references have been selected from such works as *Aequanimitas with Other Addresses*, and *Selected Writings of Sir William Osler*, and *An Alabama Student and Other Biographical Essays*. Marginal notes have been appended for the purpose of focusing the attention of the reader on the point being made by Dr. Osler. In addition, many helpful footnotes at the bottom of the page are inserted to aid that reader who is less familiar with Greek and Latin philosophy and mythology.

Throughout his works Osler often expressed in one way or another his personal, driving philosophies. But nowhere were these more clearly expressed than in "L'Envoi," his final address to the medical profession of the United States and Canada at the farewell dinner in New York, May 2, 1905, when he said "I have three personal ideals. One to do the day's work well and not bother about tomorrow. It has been urged that this is not a satisfactory ideal. It is; and there is not one which the student can carry with him into practice with greater effect. To it, more than to anything else, I owe whatever success I have had—to this power of settling down to the day's work and trying to do it to the best

of one's ability, and letting the future take care of itself.

"The second ideal has been to act the Golden Rule, as far as in me lay, toward my professional brethren and toward the patients committed to my care.

"And the third has been to cultivate such a measure of equanimity as would enable me to bear success with humility, the affections of my friends without pride and to be ready when the day of sorrow and grief came to meet it with the courage befitting a man.

"I have made mistakes, but they have been mistakes of the head, not of the heart. . . ."

For that person not now acquainted with the works of Sir William Osler, this anthology will provide a fascinating introduction and, it is suspected, instill a desire to read further into the writings of this great physician. For those who are already well acquainted with Oslerian works, the portions contained in this book will provide further interesting reading in a modernized setting.

K. E. PENROD

Abstracts

Pharmacology in Medicine. 2d ed. Edited by VICTOR A. DRILL, with 85 collaborators. New York: Blakiston Division, McGraw-Hill Book Company, Inc., 1958. 1243 pp. \$19.50.

The discovery of new drugs and an ever increasing knowledge of the action of both new and old drugs during the past 4 years necessitate this second edition. Not only has information on new drugs been added, but the action of other drugs has been further explained, desirable therapeutic actions have been emphasized, and side effects and toxicity have been more clearly delineated. A considerable revision of the first edition of this text has resulted in an omission of a number of previously discussed com-

pounds as they have been replaced by newer, more effective medicaments. The basic organization of the book has been retained with only minor changes to reflect alterations of emphasis. A new chapter has been added, "Drugs Affecting Behavior," which summarizes the recent outstanding advances in psychopharmacology. Each of the 86 contributors has lent his special knowledge to a review of the recent literature and to an evaluation of the pharmacologic properties and therapeutic uses of those drugs in his particular field of interest. Seventy-eight of the 86 contributors to this edition contributed to the first edition. Reports received too late for inclusion in the body of the book have been placed in an addendum, and it is planned to keep the text up to date by adding further significant new material to this section in subsequent printings. All material in this text has been edited to conform with the latest editions of the *U.S. Pharmacopoeia*, the *National Formulary* and *New and Non-official Drugs*.

Heart Disease in Infancy and Childhood.

By JOHN B. KEITH, RICHARD D. ROWE, and PETER VLAD. 1st ed. New York: Macmillan Company, 1958. 849 pp. plus appendices. \$22.50.

This book, prepared by a group at University of Toronto, has been planned so as to be of interest to pediatricians, internists, cardiologists, and a growing group in general practice who have to deal with such cases as herein described at not infrequent intervals. In recent years, in the light of broad interests and with a more detailed examination of the facts, it has been demonstrated that there are many more children suffering from congenital heart disease than from rheumatic fever. Furthermore, there are numerous other types of cardiac involvement in infancy and childhood which are in need of investigation and therapy. Antibiotics, the ingenious diagnostic and surgical techniques of recent years, and modern anesthetic methods have all played an important part in the evolution of successful therapy and management of heart disease in the pediatric age group. The authors have attempted to review and condense a good deal of the information available as it applies to various forms of disease in this age group. In many instances they have included a brief description of the anatomy, an outline of the course of the circulation and dynamics concerned, the pathologic defects, the clinical find-

ings, and treatment and prognosis. In addition to their own material, they have drawn heavily on the literature, and a reasonably complete bibliography is included with each chapter.

Heart Disease and Pregnancy, Physiology and Management. By C. SIDNEY BURWELL and JAMES METCALFE. 1st ed. Boston: Little, Brown & Company, 1958. 328 pp. \$10.00.

This volume is considered a successor to *The Heart in Pregnancy and the Child Bearing Age* by Hamilton and Thompson. The senior author of this book was one of Dr. Hamilton's pupils. The main theme of this volume is: by applying the observations made in normal women during pregnancy to the problems presented by the diseased mother, the course of disease in pregnant women may often be explained in physiologically satisfactory terms. When this is so, management of the disease during pregnancy becomes rational rather than empirical, and the physician is able to direct more women through more pregnancies with fewer maternal and fewer fetal deaths. Armed with the knowledge of the changes which occur in normal pregnancy, the physician can approach the management of his cardiac patients' special complication with logical therapy. In addition to the obstetrician, it is the feeling of the authors that the book will likewise be of interest to the general biologist, that physiologist interested in the mechanism of reproduction, any physiologist who is faced with guiding mothers through the occasional dangers of pregnancy, the general physiologist, and the student of pathologic physiology—who will recognize that the burden of pregnancy places strains on physiological balances and adjustments.

Traquair's Clinical Perimetry. By G. I. SCOTT. 7th ed. St. Louis: C. V. Mosby Company, 1957. 297 pp., 280 illustrations. \$17.00.

The first edition of this book was written in 1927. In the intervening years, Dr. Traquair added such a vast amount of information that in some cases the underlying concepts of quantitative perimetry were obscured. Dr. Scott, acting as editor of the 7th edition, has attempted to simplify the presentation of the subject in order that the basic principles again become obvious. He has judiciously used an appendix for certain data necessary to those undertaking research but not essential for an understanding of the

value of perimetry in clinical practice. Likewise, he has introduced into the text a fuller discussion of the applied anatomy of the visual pathway, since so much of the understanding of the pathologic changes which may affect it must depend upon knowledge of the normal. Advances in knowledge have necessitated alterations in sections on optic neuropathy and in the chapter on affections of the anterior part of the optic radiation. Changes in the visual field which may occur in thyrotropic exophthalmos and following the operation of mitral valvulotomy, although rareties, have also been included. A number of new illustrations have been added, and certain parts have been rewritten and rearranged, particularly the chapters on glaucoma, affections of the optic nerves, and on the chiasma.

Intestinal Obstruction. By CLAUDE E. WELCH. 1st ed. Chicago: The Yearbook Publishers, Inc., 1958. 349 pp. \$10.50.

The practicing surgeon, to whom the responsibility of the care of patients with obstruction is entrusted, is the individual who is most deeply and intimately concerned with its various manifestations. In teaching hospitals many of the duties involved rest upon the shoulders of the resident staff. It is to all these clinical surgeons that this book is addressed. There are three particular questions which the young surgeon must consider. They are: What are the salient facts about intestinal obstruction? In the interest of clarity and brevity, data have been selected for this book, but an encyclopedic collection of all available material has been avoided deliberately. What are the exact technical methods of management of specific types of obstruction? Blind routine cannot be substituted for surgical judgment; yet, good judgment can be negated by inattention to, or lack of knowledge of, the exact techniques involved in the indicated surgical procedures. Where may further facts be obtained? A bibliography becomes an important guide to further information and a considerable collection of reference material has been cited.

Erythroblastosis Fetalis, Including Exchange Transfusion Technique. 1st ed. By FRED H. ALLEN, JR., and LOUIS K. DIAMOND. Boston: Little, Brown & Co., 1958. 119 pp. \$4.00.

Most of the material in this small book originally appeared in the "Medical Progress" section of the *New England Journal of Medicine* last October. The facts and experiences collected here are the summarization of more than 25 years of personal interest of the authors in erythroblastosis fetalis and 15 years of pursuit of Rh problems. For completeness and greater usefulness to medical specialists, a section on technic of exchange transfusion has been included, since the procedure as originally described has been somewhat modified. For interns, residents, and practicing physicians who are less familiar with the subjects of blood-group iso-immunization and erythroblastosis fetalis, a glossary has been added, in order to give a correct interpretation and explanation of the words and terms herein used. It is hoped that this will have a particular value in answering the many questions which physicians are asked when laymen seek information regarding the Rh factor or other blood groups which have become a matter of deep personal concern to them because of erythroblastosis fetalis or blood-group incompatibility in the family.

Polysaccharides in Biology. Trans. Second Conference of the Josiah Macy, Jr., Found., April 25-27, 1958. GEORGE F. SPRINGER (ed.), with 26 participants. 220 pp. \$5.00.

The pattern of publication of the transactions of Josiah Macy, Jr., Foundation Conferences is well known. The principal subjects covered in this conference were "Sialic Acid and Related Compounds" by Friedrich Zilliken, "Interactions of Polysaccharides and Viruses" by Frank L. Horsfall, and "Pyrogens" by Otto Westphal.

Chemistry and Biology of Mucopolysaccharides. Ciba Foundation Symposium. 1st ed. G. E. W. WOLSTENHOLME and MAEVE O'CONNOR (eds.). Boston: Little, Brown & Co., 1958. 313 pp. \$8.50.

This symposium, held April 23-25, 1957, was attended by 30 participants and chaired by Professor W. T. J. Morgan. Sixteen papers were presented and discussed. For purposes of this symposium the word "mucopolysaccharides" had to have a definition, and it was decided to go ahead on the broad understanding that the term denotes carbohydrate-amino acid complexes which cannot yet be described in agreed exact terms. Each paper generated a lively dis-

cussion which is included in this volume and should be of interest to a wide variety of workers in this general field.

Psychotherapy of Chronic Schizophrenic Patients. 1st ed. By CARL WHITAKER (ed.), with seven associates. Boston: Little, Brown & Co., 1958. 219 pp. \$5.00.

This book was an outgrowth of a meeting of a small group of psychiatrists who had been concerning themselves with diagnosis and treatment of the schizophrenic patient. This meeting took place October 15-17, 1955. At the meeting there were eight sessions (and a summing-up session, which appears in this book only in the form of short summaries after the chapters), each moderated by one of the participants. The agenda was carefully planned, and each member of the group was assigned in advance the topic of his discussion. This was a coordinated, planned conference devoted totally to discussion, with no papers, no formal presentation of material. Each session considered a significant aspect of the diagnosis and treatment of the schizophrenic patient, and each session logically followed the preceding one. Every word of the conference was taken down by stenotype and was tape recorded. The material was edited by each member but not rewritten. All members of the group are primarily interested in the psychotic patient as opposed to the neurotic patient. Furthermore, they use psychotherapy exclusively.

Analysing Psychotherapy. By SOLOMON KATZENELBOGEN. 1st ed. New York: Philosophical Library, 1958. 120 pp. \$3.00.

The objective of this book is to acquaint the reading public with the meaning, scope, and essential constituent parts and methods of psychological treatment. The monograph was written: (1) to identify psychotherapy with one method of psychological treatment, namely, Freudian psychoanalysis. Such tendency appears to be strong among physicians, psychologists, social workers, intellectuals enlightened on the subject, and more or less informed readers, in general; (2) to answer a number of the questions asked by patients during the therapeutic sessions. It is their need for enlightenment which has largely determined the content of this presentation. It is the objective of the author to present, as comprehensively as possible, while maintaining reasonable concise-

ness, what he practices in psychotherapeutic sessions.

Group Processes. Trans. Third Josiah Macy, Jr. Found. Conference, October 7-10, 1956. BERTRAM SCHAFFNER (ed.), 23 participants. New York: The Josiah Macy, Jr., Found., 1957. 318 pp. \$4.00.

The material covered in this conference was: Interpersonal Influences within the Family, Interpersonal Persuasion, Further Studies of Maternal-Neonate Inter-Relationships, and Chinese Communists Thought Reform.

Biochemical Investigations in Diagnosis and Treatment. By JOHN D. N. NABARRO. 2d ed. Boston: Little, Brown & Co., 1958. 281 pp.

The first edition of this book was written as a practical guide for hospital residents and registrars from the approach of the bedside physician. It was an attempt to show how the biochemical tests that are performed in the hospital laboratory can help in the solution of the diagnostic problems that arise in the wards and how they may be used as a guide in planning treatment. No major changes in objective have been made in this second edition. Due to the lapse of 4 years between editions, a number of new sections have been added on such topics as Abnormal Hemoglobins and the Syndrome of Malignant Carcinoid. The section on the Adrenal Glands has been rewritten in the light of recent progress. With the rapid rise of radioactive isotope techniques, the scope of this book has been widened, and the possibilities of some of the new studies with isotopes are mentioned in the text.

The Social Desirability Variable in Personality Assessment and Research. By ALLEN L. EDWARDS. 1st ed. New York: Dryden Press, 1957. 91 pp.

Interest in personality assessment is widespread among the behavioral sciences such as sociology, cultural anthropology, economics, political science, and education, not to mention psychology. Much has been written in textbooks concerning personality variables, but little thought has been given to what might be called the social desirability variable in personality assessment and research. In contrast to the large number of personality inventories designed to measure other traits, there are rela-

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tively few means of measuring "normal" personality variables. Into the latter category would fall the problem of social desirability as a factor potentially influencing responses to statements in personality inventories. The author began work in this field in 1951, and the present book is essentially a summarization of his studies, presented in his Presidential Address to the Western Psychological Association in the Spring of 1956. Whereas a number of the conclusions presented appear to be well substantiated, others must be recognized as tentative and speculative. It is the hope of the author that this book will stimulate research designed to provide additional information as to how the social desirability variable operates, not only in personality assessment, but also in experimental studies in which personality variables are a prime consideration.

Glaucoma. Trans. 2nd Josiah Macy, Jr., Found. Conference, December 3-5, 1956. FRANK W. NEWELL (ed.), 20 participants with 4 guests. New York: The Josiah Macy, Jr., Found., 1957. 220 pp. \$4.95.

The material covered in this conference was: Mechanisms Concerned with Aqueous Formation-Historical Background, Introduction to Mathematical Formulation of Aqueous Dynamics, Mechanism of Transport by Membranes, the Glaucoma Problem and Applanation Tonometry.

Dynamic Anatomy and Physiology. By L. L. LANGLEY, E. CHERASKIN, and RUTH

SLEEPER. 1st ed. New York: Blakiston Div. McGraw-Hill Book Company, 1958. 686 pp. \$6.00.

In the healing arts, anatomy and physiology are essential components. But whereas in the past, emphasis has been on structure, today it is focused on function. Anatomy, both gross and microscopic, is now recognized, not as an end in itself, but rather as a prerequisite for the comprehension of physiology, which in turn is essential for the total understanding of the human body. As a consequence of this change, this textbook breaks from the old tradition in the interest of this newer concept. Not only is the anatomy reduced, but the study of function—that is, physiology—is at all times integrated into the broader consideration of the student's major goal. This text is prepared primarily for students in the ancillary medical fields whether they be taught in programs of universities, junior colleges, or hospital schools. It is the feeling of the authors that it is no longer adequate to possess didactic information concerning the human body. Now it is essential to have a functional knowledge—understanding that permits one to appreciate the rationale of therapy rather than to follow orders blindly. This textbook has been written for students of diverse interests and widely differing backgrounds. The anatomy and physiology have been, for the most part, separated. The peripheries of subjects are sufficiently explored that the instructor may set his own limits with the full awareness that there is present material to satisfy those exceptional students with a desire to probe deeper.

Books Received

The Atomic Age and Our Biological Future. By H. V. BRONSTED, transl. by E. M. Huggard. New York: Philosophical Library, 1957. 75 pp. \$2.75.

Fat Consumption and Coronary Disease: The Evolutionary Answer to This Problem. By T. L. CLEAVE. New York: Philosophical Library, 1958. 40 pp. \$2.50.

Our Nuclear Adventure—Its Possibilities and Perils. By D. G. ARNOTT. New York: Philosophical Library, 1958. 166 pp. \$6.00.

Ideals in Medicine—a Christian Approach to Medical Practice. By VINCENT ED-

MUNDS and C. GORDON SCORER. 1st ed. London: Tyndale Press, 1958. 175 pp. 12 s. 6 d.

Annual Review of Medicine, Vol. 9. DAVID A. RYTAND (ed.) and WILLIAM P. CREGER (assoc. ed.). Palo Alto, Calif.: Annual Reviews, Inc., 1958. 488 pp. \$7.00.

Principles of Research in Biology and Medicine. By DWIGHT J. INGLE. Philadelphia: J. B. Lippincott Co., 1958. 120 pp. \$4.75.

Comparative Clinical and Biological Effects of Alkylating Agents. OTTO V. ST. WHITELOCK (ed.). Ann. New York Acad. Sc., 68:657-1266, 1958.

ITEMS OF CURRENT INTEREST

Air Force Staff Changes

Colonel LARRY A. SMITH, USAF (MC), was recently assigned as deputy director of Medical Staffing and Education, Office of the Surgeon General, USAF. Dr. Smith, who is replacing Colonel PATRICK H. HOEY, USAF (MC), specializes in internal and aviation medicine. Dr. Hoey has been assigned as Deputy Surgeon of the Continental Air Command at Mitchel Air Force Base, New York.

American Academy of General Practice

Six medical schools will send speakers to the Second Annual Symposium on Infectious Diseases. The one-day symposium, jointly sponsored by the American Academy of General Practice, Kansas University Medical Center, and Lederle Laboratories, will be held Friday, September 19, on the medical center campus, Kansas City, Missouri. Those participating include: Dr. ROBERT I. WISE, Jefferson Medical College; Dr. WILLIAM M. M. KIRBY, University of Washington; Dr. HARRY F. DOWLING, Illinois; Dr. ROBERT WEBER, Kansas; Dr. R. CANNON ELEY, Harvard; Dr. THOMAS H. HAIGHT, Oklahoma.

Department of Health, Education, and Welfare

The Senate has confirmed the appointment of ARTHUR S. FLEMMING to succeed Secretary MARION B. FOLSON of HEW, and LEO A. HOEGH, former Iowa governor, as director of the new Office of Defense and Civilian Mobilization.

In a report recently released by a group of special consultants to the Secretary of Health, expenditures for medical research in this country can and should be tripled to reach a billion dollars a year by 1970. The consultants warned, however, that a medical research effort of this magnitude will require a major increase in the number of physicians

and other scientists engaged in medical research—from 20,000 now to 45,000 by 1970. They also stated that funds for construction of medical schools will be needed on a much larger scale than has heretofore been contemplated. Heading the group was Dr. STANHOPE BAYNE-JONES, former dean of the Yale University School of Medicine.

A revised *Directory of Medical and Biological Research Institutes of the U.S.S.R.* has been issued by the National Institutes of Health. The new edition is more comprehensive than the original 1957 edition, and its purpose is to facilitate the exchange of scientific information between the United States and the U.S.S.R.

Dr. JOHN C. CUTLER has been named Assistant Surgeon General for Program in the Office of the Surgeon General, succeeding Dr. ARNOLD B. KURLANDER, who has been appointed Deputy Chief of the Service's Bureau of Medical Services.

Three medical educators have been appointed to serve through September, 1962, on the National Advisory Arthritis and Metabolic Diseases Council. They are: Dr. CARL V. MOORE, Washington University; Dr. CHARLES H. BURNETT, North Carolina; Dr. CHARLES A. RAGAN, Jr., Columbia.

American Medical Writers To Hold Annual Meeting

The 15th Annual Meeting of the American Medical Writers' Association will be held at the Hotel Morrison, Chicago, September 26, to be followed by a Workshop on Medical Writing, Saturday morning. There will be 16 speakers at the meeting on September 26, among whom will be Dr. JOHN Z. BOWERS, editor of *The Journal of Medical Education*; Dr. CHARLES E. LYGHT, Director, Medical Publications, Merck, Sharp & Dohme Research Laboratories; Dr. ALTON OCHSNER, professor of surgery, Tulane University; Dr. AUSTIN SMITH, editor, *J.A.M.A.*; Dr. KARL A. MENNINGER, chief of staff, Menninger Foundation.

MEND News

Meeting at San Francisco on June 22, the Subcommittee on the MEND Program appointed Captain BENNETT F. AVERY (MC), USN, to serve as National Coordinator of the MEND Program, replacing Dr. JAMES R. SCHOFIELD. Captain Avery was former editor of the *U.S. Armed Forces Medical Journal*. While he will continue on active duty as a Navy officer, Captain Avery will be assigned to MEND Program activity exclusively.

Dr. SCHOFIELD, who served as MEND National Coordinator from 1955 to 1958, will remain as assistant dean at Baylor on a full-time basis.

Dr. Malamud Heads NAMH Research

Dr. WILLIAM MALAMUD will join the National Association of Mental Health staff September 1, as director of research. For some years he has been professor and chairman of the division of psychiatry at Boston University School of Medicine as well as psychiatrist-in-chief at Massachusetts Memorial Hospitals.

National Fund for Medical Education

To help support the search for new medical knowledge and to increase the number of trained medical researchers, the National Fund for Medical Education has established a Medical Research Program through which contributions from united funds, community chests, voluntary health agencies and other organizations will be channelled into basic research. The United Community Funds and Councils of America, whose local affiliates have expressed a desire to help support broad fundamental programs of basic medical research on a national level, have agreed to support this new research program.

Veterans Administration

Dr. JOHN C. NUNEMAKER, director of the education service in the Veterans Administration Department of Medicine and Surgery in Washington, D.C., and professorial lecturer in medicine at George Washington University School of Medicine, left August 1 to become associate secretary of the American Medical Association Council on Medical Education and Hospitals in Chicago.

Warner-Chilcott Establishes Scholarship in Medical Technology

Dr. LEONARD A. SCHEELER, president of Warner-Chilcott Laboratories, has announced the establishment of a scholarship for advanced study in medical technology. To be awarded annually to a medical technologist whose aim is a teaching career, the scholarship is being made available by the Laboratory Supply Division of Warner-Chilcott.

World Health Organization

The Pan American Sanitary Bureau, Regional Office of WHO, has established a new zone office in Caracas, Venezuela, embracing the Caribbean territories and the Republic of Venezuela, host country to the new office. Dr. PERCY F. DE CAIRES has been appointed zone representative.

World Federation for Mental Health

Plans for a World Mental Health Year in 1960 sponsored by 108 mental health and professional societies in 43 countries and territories were revealed recently. Following the pattern of the International Geophysical Year, the purpose of the program is to stimulate mental health activities, including research, with a maximum of international cooperation.

New Section of AAMC

The Medical School-Teaching Hospital Section, a newly formed section of the AAMC, will hold its first meeting October 10-11 in Philadelphia in conjunction with the annual meeting of the Association.

The purpose of this new section is the creation of a forum for the study of the role of teaching hospitals in medical education. It also provides the opportunity for this section to participate in the annual AAMC meeting with medical educators throughout the country and thus establish a greater understanding between teaching hospitals and medical school administrators.

Membership of the section is limited to the number of medical schools holding membership in the AAMC. The dean of each medical school has been requested to nominate the administrator-executive of his main teaching hospital to attend the meeting, which for the first year is open only to

nominees and deans. The hospital administrators are then being invited to attend the general meeting of the AAMC, October 13-15.

Officers of the planning committee of this new section are: Chairman: GERHARD HARTMAN, Ph.D., Superintendent, University Hospitals, Iowa City, Iowa; Vice-Chairman and program coordinator: DONALD CASELEY, M.D., Medical Director, University of Illinois Research and Educational Hospitals and Associate Dean, College of Medicine; and Secretary: DUANE JOHNSON, Administrator, University of Nebraska College of Medicine, Omaha, Nebraska.

Foreign Color TV To Be Introduced

The Eidophor, a closed-circuit TV color projector, will be demonstrated Tuesday evening, October 14, in Philadelphia as part of the AAMC annual meeting.

Developed in Switzerland, the Eidophor uses a 20-foot screen and is reported to be the most outstanding development in the audiovisual field because of its clarity and its noticeable accuracy in color. It is being introduced to the United States at this time by Ciba Pharmaceutical Company and will subsequently be made available to medical education groups throughout the country. Those attending the AAMC meeting will therefore be witnessing its debut in this nation.

Ray Torr Dies

RAY TORR, public relations director for the National Fund for Medical Education, died July 17 in New York City. Mr. Torr made many contributions to medical education above and beyond those duties assigned to him at the Fund, and his death will be keenly felt by those who knew him.

NEWS FROM THE MEDICAL SCHOOLS

Five New Deans Appointed

Minnesota has appointed Dr. ROBERT B. HOWARD to the post of dean of the medical sciences, succeeding Dr. HAROLD S. DIEHL, who retired June 30. Dr. Howard has served as associate dean of the medical sciences since last fall when Dr. Diehl took a leave of absence to accept an appointment with the American Cancer Society as senior vice-president for research and medical affairs and deputy executive vice-president. Dr. Howard attained the rank of full professor when he assumed his duties as dean on July 1. In 1952 he was named university director of continuation medical education, a post he held until last year.



Columbia University has appointed Dr. H. HOUSTON MERRITT as dean of its

College of Physicians and Surgeons, filling the vacancy created by the retirement of Dr. WILLARD C. RAPPLEYE on June 30. Dr. Merritt has been on Columbia's faculty since 1944 as professor of neurology. Before coming to Columbia, Dr. Merritt held the position of associate professor of neurology at Harvard University Medical School and was affiliated with Boston City Hospital as visiting neurologist and with Peter Bent Brigham Hospital as consulting neurologist.

Tennessee's medical school has as its new dean Dr. M. K. CALLISON, specialist in internal medicine and associate professor. Dr. Callison replaced Dr. O. W. HYMAN, who retired as dean of the College of Medicine July 1. Dr. Hyman, however, will continue as vice-president of the university, a position he has held since 1948.

Vanderbilt University has announced the appointment of Dr. JOHN W. PATTERSON as director of medical affairs and dean of the school of medicine. Dr. Patterson is

now dean of the faculty of medicine at the University of British Columbia, in Vancouver, Canada. Coming to Vanderbilt in September, he will be succeeding Dr. JOHN B. YOUNG, who is resigning to become head of medical research for the U.S. Army.

Washington University has named Dr. EDWARD W. DEMPSEY dean of its school



of medicine, effective September 1. Dr. Dempsey, professor of anatomy and head of the department, will retain both posts when he takes over the deanship. He is replacing Dr. OLIVER LOWRY, who has been dean since 1955, but

who now will devote his time to teaching and research.

Albany

Three Albany Medical College faculty members took part in the Seventh Annual International Cancer Congress in London, England, July 6-12. Attending the meeting were Dr. JOHN C. MCCLINTOCK, Dr. DORIS S. ROME, and Dr. KENNETH B. OLSON. The Congress, devoted to reports on the world's cancer research, was held in London's Royal Festival Hall.

Baylor

Dr. C. D. DUKES, of the department of microbiology, will take a year's leave of absence to go to the Rockefeller Institute for Medical Research in New York City, where he has accepted an appointment as guest investigator, effective September 1.

Dr. JOHN S. SCOTT, physiology and neurology, resigned from the faculty in June to become affiliated with the University of Colorado College of Medicine.

Dr. ARTHUR KIRSCHBAUM, professor and chairman of the department of anatomy, died May 28, of a coronary occlusion. A resident of Houston since 1954, he was also consultant at the M. D. Anderson Hospital and Tumor Institute and the Veterans Administration Hospital. Dr. Kirschbaum had served on the faculties of Yale University School of Medicine, the University of

Minnesota Medical School, and the University of Illinois College of Medicine.

University of Chicago

British and European recognition of his contributions to cancer research and treatment took Dr. CHARLES B. HUGGINS, director of the Ben May Laboratory for Cancer Research, to Europe in late June. Dr. Huggins gave the biannual MacEwen Surgical Lecture at the University of Glasgow, received the University of London's third Comfort Crookshank Award, and in Bonn, Germany, received from President Theodor Heuss the German Federal Republic's Order Pour le Mérite. He was unable to remain in Europe to receive the biannual Cameron Prize of the University of Edinburgh but will return this autumn for the presentation and the accompanying lecture. He is also to receive the University of Toronto's Charles Mickle Fellowship for 1958.

Dr. MURRAY RABINOWITZ, of the Rockefeller Institute for Medical Research, has been appointed director of the new cardiopulmonary laboratory, effective September 1.

Dr. DWIGHT E. CLARK has been appointed chairman of the department of surgery. He succeeds Dr. LESTER R. DRAGSTEDT, who will retire next year, but resigned from the chairmanship to complete research he is conducting.

Dr. ROBERT D. MOSELEY, JR., has been named professor and chairman of the department of radiology, succeeding Dr. PAUL C. HODGES, retired.

Cincinnati

Approximately forty members of the faculty have been promoted, effective September 1. Included among these is the appointment of Dr. SAMUEL A. TRUFANT from assistant dean to associate dean. Dr. Trufant also serves as associate professor of neurology.

Dartmouth

New appointments to the faculty include Dr. JANE SANDS ROBB, who will join the faculty as visiting professor of pharmacology. Dr. Robb is currently associate pro-

fessor of pharmacology at the State University of New York.

Dr. MARTIN GELLERT has assumed his duties as assistant professor of biochemistry, and Dr. WALTER GUERNSEY FREY III has been appointed instructor in clinical medicine.

Duke

The School of Medicine announces a major educational program designed to produce physicians who are also skilled medical research scientists. The program is designed primarily to train medical students and hospital resident physicians in methods and use of research tools for modern scientific investigation. Financial support during the first three years will come from combined grants totaling more than \$750,000, and facilities for the program will be housed in a new four-story addition to the Bell Medical Research Building. The first class of research students is scheduled to be admitted in July, 1959. Dr. PHILIP HANDLER, chairman of the biochemistry department, has been instrumental in setting up the program.

Georgetown

Dr. JOHN C. ROSE, associate professor of medicine, has been appointed acting chairman of the department of physiology, succeeding Dr. CHARLES F. MORGAN, who has resigned to become research professor of pharmacology at Georgetown. Dr. Rose has also been serving as medical education coordinator at the university.

Dr. THEODORE KOPPANYI, professor and chairman of the department of pharmacology, has received an award to participate in the International Educational Exchange Program, under the Fulbright Act. He will lecture in pharmacology at the Hebrew University, Jerusalem, Israel, during the 1958-59 academic year.

Harvard

Dr. BRIAN MACMAHON has been named professor and head of the department of epidemiology at the Harvard School of Public Health, succeeding Dr. JOHN EVERETT GORDON, retired. Dr. MacMahon was formerly professor of environmental medicine and community health in the College of

Medicine of the State University of New York in Brooklyn.

Dr. ROSS A. MCFARLAND, who combines engineering and biological sciences in studying and developing health and safety programs related to air and ground transportation and industry, has been named professor of environmental health and safety in the faculty of public health.

Howard

Dr. CHARLES W. BUGGS has been appointed head of the department of microbiology.

Illinois

Honorary membership in the Royal College of Surgeons in London has been awarded to Dr. WARREN H. COLE, head of the department of surgery. Dr. Cole, who is also surgeon-in-chief at the University of Illinois Hospitals, also received honorary fellowship in the Royal College of Surgeons of Edinburgh, Scotland.

Iowa

Dr. WALLACE W. MCCRORY has been appointed professor and head of the department of pediatrics, filling the vacancy created by the resignation last August of Dr. CHARLES D. MAY. Dr. McCrory has been associate professor of pediatrics at the University of Pennsylvania College of Medicine.

The university will be represented by two members of the medical faculty at the Seventh International Congress on Microbiology in Stockholm, Sweden, August 4-9. Dr. JOHN R. PORTER, professor and head of bacteriology, will serve on the Honorary Board of the Congress and organize a session for editors of scientific journals. Dr. Porter is editor of the *Journal of Bacteriology*. Dr. IAN MACLEAN SMITH, assistant professor of internal medicine, will present a paper at the Congress.

Jefferson

Dr. ROBERT A. MATTHEWS has been appointed head of the department of psychiatry. He resigned his post as State Commissioner of Mental Health to assume his new duties. Dr. Matthews succeeds Dr. BALDWIN L. KEYES, who will become professor emeritus.

Kansas

At the opening of the 1958-59 academic year, the department of psychiatry will have as its new chairman Dr. DONALD C. GREAVES. Dr. Greaves is leaving his position as associate professor of psychiatry at the University of Oklahoma School of Medicine to assume his duties at Kansas.

Louisiana

The LSU school of medicine has sent eight teachers from American and Canadian medical schools to Latin America for training in parasitic and other tropical diseases. Following two days of orientation, the medical teachers proceeded to the tropics for eight weeks of observation of diseases and health programs. This project completes the program of fellowships under a grant of \$120,000 from the China Medical Board of New York.

Mayo Foundation

Dr. FRANK H. KRUSEN, professor and head of the section of physical medicine and rehabilitation, received the 1958 Distinguished Service Award of the American Medical Association at its 107th annual meeting held in San Francisco in June. Dr. Krusen is the first active member of the staff in the history of the Mayo Clinic to receive this award.

Dr. JOHN R. McDONALD, head of a section of surgical pathology in the Mayo Clinic and professor of pathology in the Mayo Foundation, left Rochester July 1 to become director of pathology at the Harper Hospital in Detroit, Michigan. Dr. McDonald had been a member of the staff since 1937.

Michigan

With the retirement of Dr. FREDERICK A. COLLIER, the department of surgery will have as its newly appointed chairman Dr. CHARLES GARDNER CHILDS III. Dr. RUSSELL T. WOODBURN has been appointed chairman of the department of anatomy, upon the retirement of Dr. BRADLEY M. PATTEN. Dr. JAMES H. MAXWELL has been appointed chairman of the department of otolaryngology, replacing Dr. A. C. FURSTENBERG, who has relinquished this position

in order to devote more time to his activities as dean of the school.

The legislature of the state of Michigan has recently passed a bill which has been signed by the governor authorizing the beginning of construction of a new building for the Mental Health Research Institute, a division of the department of psychiatry. Construction is expected to begin in the fall at a cost of about 1.4 million dollars.

Mississippi

The department of anesthesiology has been designated a separate department, and Dr. LEONARD W. FABIAN has been named as professor and chairman. Dr. Fabian, formerly at Duke University School of Medicine, replaces the late Dr. G. BITTENBENDER.

New York Medical College

The college awarded the honorary degree of Doctor of Humane Letters to Dr. WILFRED C. RAPPLEYE, retiring dean of Columbia University's College of Physicians and Surgeons, in recognition of his long and distinguished leadership in the field of medical education.

Dr. KENNETH R. CRISPELL has been appointed professor and director of the department of medicine. Dr. Crispell was formerly at the University of Virginia Medical Center, where he served as associate professor of internal medicine. He succeeds Dr. LINN J. BOYD, who resigned to become director of the expanded division of graduate studies.

New York University—Bellevue

Dr. WILLIAM SMITH TILLET was honored recently in the Bellevue Hospital Center when new research laboratories of NYU College of Medicine's department of medicine were dedicated in his name. Dr. Tillett retired July 1 as professor and chairman of the department of medicine and as director of the Third Medical (NYU) Division of The Bellevue Hospital Center. Dr. LEWIS THOMAS, who succeeds Dr. Tillett, was, until his new appointment, professor and chairman of the department of pathology.

The James Foundation of New York, Inc., has made a gift of \$110,000 to the Medical Center toward the construction of a new 19-story, 600-bed University Hospi-

tal, scheduled to begin in January, 1959. Contributions totaling \$250,000 have been made by the Foundation to the Medical Center since it began its development program in 1948. The current gift will release a similar amount of money from the Samuel H. Kress Foundation, which has pledged \$5 million on a dollar-for-dollar matching plan toward the construction of the new University Hospital.

Dr. MILTON FRIEDMAN has been promoted to professor of clinical radiology, and Dr. ALAN W. BERNHEIMER has been promoted to professor of microbiology.

North Carolina

Dr. ERNEST H. WOOD was named president-elect of the Association of University Radiologists at the annual meeting of this society.

Dr. HARLEY C. SHANDS, associate professor of psychiatry, has been awarded a fellowship by the Commonwealth Fund for a year's study in London, where he will make his headquarters at Maudesley Hospital at the Institute of Psychiatry of the University of London.

Northwestern

Dr. JOHN A. D. COOPER, professor of biochemistry and assistant dean of the school, left in July to give a month-long course at the University of Buenos Aires on the use of radioisotopes in medicine. Sponsored by the university's department of biophysics and the International Cooperation Administration, the course is designed to train about thirty South American scientists in the proper use of radioisotopes and their application in diagnosis and treatment. Accompanying Dr. Cooper will be Dr. MORRIS LIPTON, assistant professor of medicine and assistant chief of professional services for research at the VA Research hospital.

Pennsylvania

Dr. THEODORE H. INGALLS, formerly associate professor of epidemiology at the Harvard University School of Public Health, joined the faculty as professor of preventive medicine and epidemiology.

Dr. DAVID S. GRICE, assistant clinical professor of orthopedic surgery at Harvard

University, has been appointed chairman of the department of orthopedic surgery, effective September 1. Dr. Grice succeeds Dr. PAUL C. COLONNA, who will retire at that time.

Pittsburgh

Dr. WALDO L. TREUTING has been appointed professor and head of the department of public health practice of the Graduate School of Public Health, succeeding Dr. JAMES CRABTREE, who became dean on July 1.

Rochester

Dr. DONALD F. McDONALD, head of the division of urology at the University of Washington School of Medicine since 1952, has been appointed professor of urology and chairman of the division at Rochester. Dr. McDonald will also be urologist-in-chief in Strong Memorial Hospital of the UR Medical Center, succeeding Dr. WINFIELD W. SCOTT, who will become professor of urological surgery emeritus after having served on the faculty for 30 years.

The university has established a program of postdoctoral fellowships to be awarded graduates of approved medical schools to enable them to pursue research in any of the departments of the school of medicine and dentistry. The Buswell Fellowships are made possible by the bequest of the late Mr. Ralph Hochstetter and are intended to assist well-qualified doctors of medicine to prepare adequately for academic careers. Applications will be received at any time and additional information and applications may be obtained by writing to Dr. L. E. Young, Chairman, Committee on Buswell Fellowships, University of Rochester Medical Center, Rochester 20, New York.

St. Louis

The National Heart Institute of the U.S. Public Health Service has awarded a four-year grant of \$73,000 to Dr. JOHN P. WYATT, professor of pathology and associate director of the department, and Dr. HERBERT C. SWEET, assistant professor of internal medicine and director of the Miller Pulmonary Laboratories.

South Dakota

New appointments to the faculty include Drs. GEORGE S. SERIF and FLOYD M. FOLTZ. Dr. Serif, presently at Scripps Clinic and Research Foundation, will join the faculty as assistant professor of biochemistry, and Dr. Foltz, who will be leaving his position at the University of Kansas, has been appointed assistant professor of anatomy.

The South Dakota Heart Association has recently appropriated \$50,000 for research in cardiovascular physiology for a period of five years.

Temple

Dean WILLIAM N. PARKINSON recently announced a list of seventeen promotions and eleven additions to the faculty. Among those elevated to full professors of clinical otorhinology are Dr. CHARLES Q. DELUCA, Dr. A. NEIL LEMON, and Dr. BERNARD J. RONIS.

Dr. WILLIAM H. PERLOFF, associate professor of medicine, recently made an extensive month-long lecture tour of South American medical schools. His journey took him to Bogotá, Lima, Santiago, Buenos Aires, São Paulo, and Rio de Janeiro.

Tennessee

When Dr. EMMETT R. HALL relinquished his duties as head of the department of dermatology, a position he has held since 1933, he turned them over to his nephew, Dr. VONNIE A. HALL. Dr. Vonnice Hall was advanced from associate professor to professor when he was named head of the department on July 1.

Texas (Postgraduate)

A course on "Medical Problems of the Elderly" will be held October 23-25 at the University of Texas M. D. Anderson Hospital and Tumor Institute in the Texas Medical Center, Houston. The course is designed to emphasize many medical features peculiar to elderly people, with stress on nutritional, endocrine, cardiopulmonary, neurological, and emotional changes which are characteristic of this part of our population. All inquiries should be addressed to The University of Texas, Postgraduate School of Medicine, 410 Jesse Jones Library Bldg., Texas Medical Center, Houston 25.

Tulane

Dr. JOHN P. FOX, professor of epidemiology, has been appointed director of the Division of Graduate Public Health. He has also been designated to become the first occupant of The William Hamilton Watkins chair in epidemiology which was established by Mr. and Mrs. Charles E. Inbusch of Milwaukee, Wisconsin. In this capacity he will become administrator of the graduate training program in public health and tropical medicine. This program is one of twelve in North America, and students from all parts of the United States as well as the world participate.

University of Virginia

Construction is under way for an addition to the present Cancer Research building which will provide nineteen research laboratories, with necessary service facilities for the clinical departments. Total cost of the project is estimated at \$545,000, with completion expected in 1959.

Wisconsin

The second annual Conference on Medical Education for Foreign Scholars in the Medical Sciences was held at the university on June 30 and July 1-2. The Conference was attended by forty-five foreign scholars representing twenty-seven countries from all parts of the world. In addition, thirty-one United States medical educators attended the Conference and assisted with the instruction, along with several faculty members of the Wisconsin faculty. Topics covered by lecture were: "The Philosophy of United States Higher Education," "The Objectives of Medical Education," "Education after Medical School," and "The Medical Teacher and the Medical Student." The presentation of each of these topics was followed by discussions in which the foreign scholars and United States educators participated.

Another such conference is planned next year at the State University of Iowa.

Arrangements for the conference were made and supervised by Dr. ROBERT C. PARKIN, assistant to the dean and coordinator of Graduate Education at the Wisconsin Medical School.

Yale

Dr. MORTON M. KLIGERMAN, associate professor of radiology at Columbia University, is resigning his post to become professor of radiology and chairman of the department at Yale, where he will also be radiologist-in-chief at the Grace-New Haven Community Hospital.

Saskatchewan

The Saskatchewan Cancer and Medical Research Institute was opened recently. The

two-story structure was provided jointly by the Saskatchewan Cancer Society and the provincial government. Headed by Dr. ROBERT W. BEGG, professor of cancer research, its professorial members hold honorary appointments in the departments of biology, biochemistry, pathology, and physiology.

As first professor of social and preventive medicine, Dr. ALEXANDER ROBERTSON, lecturer at the London School of Hygiene and Royal Free Medical School, will join the faculty in September.

PERSONNEL EXCHANGE

Faculty Vacancies

Two Physicians—Paris, France

The American Hospital of Paris wishes to recruit one or two American physicians for the attending staff of the hospital. The physician must have sufficient experience and authority to be appointed Assistant Chief of Medical Services and capable of substituting for the Chief of Medical Services during his absence from the hospital. Salary \$10,000 per annum for services in hospital. He would also be encouraged to enter into private practice. During first few months after arrival, a small apartment in Doctors residence is available.

Hospital also wishes to recruit a young American physician prepared to enter practice as a general practitioner who would be assigned to attending staff of the hospital, and would be expected to assist in medical work of the hospital together with taking on private patients with thought of building up a private practice in Paris and adjoining territory. Hospital is prepared to provide small apartment in Doctors residence adjoining hospital and board at hospital, together with a guarantee that fees from private practice for first year would be not less than the equivalent of \$10,000.

For further information, write Mr. Hugh S. Fullerton, Executive Governor, American Hospital of Paris, 63 bld. Victor Hugo, Neuilly sur Seine, France.

PHYSICIANS (2): The Survey of General Practice in Canada requires two physicians as full-time assistants, one in Nova Scotia, the other in western Canada. Duties commence summer or autumn of 1958 and run 12 to 18 months (details to be arranged). Salary \$8,000-\$10,000 per annum, depending on experience, plus travel expenses. These positions involve considerable responsibility and should appeal to physicians who have a broad interest in the problems of general practice, including the educational problems. Applicants should have had two years' post-graduate training. Training in internal medicine is a desirable background. Send application, with details of experience and names of two references on medical faculties to Director, Survey of General Practice, School of Hygiene, University of Toronto, Toronto 5, Ontario.

BIOCHEMIST: Applications are invited for the Chair of Biochemistry in the Faculty of Medicine. Minimum qualifications: M.D. with special training in Biochemistry, or Ph.D. in Biochemistry. Teaching and research experience essential. Salary in the range of \$10,000, depending on qualifications and experience. Address applications or

enquiries to L. G. Bell, M.D., Dean, Faculty of Medicine, The University of Manitoba, Emily & Bannatyne, Winnipeg 3, Man., Canada.

BIOCHEMIST: Teaching and research, department of biochemistry, University of Alabama. Salary and rank depend upon educational background, teaching and research activities. Reply should include personal history, complete bibliography and photo. Address: Emmett B. Carmichael, Department of Biochemistry, Alabama Medical Center, Birmingham 3, Ala.

OBSTETRICS and GYNECOLOGY: Full-time Board eligible instructor for expanding Department Obstetrics and Gynecology in large midwestern university. Ample opportunity for research, teaching and clinical experience. Address: V-68.

FELLOWSHIP IN CARDIOVASCULAR DISEASE: Active participation in cardiac catheterisation, cine-angiography, phonocardiography and experimental surgical laboratories. Should have completed internship. Possible later incorporation into surgical or medical residency. Apply to J. G. Mudd, M.D., St. Louis University Hospitals, 1325 S. Grand Blvd., St. Louis 4, Mo.

PEDIATRICIAN: Applications are invited for the position of full-time Associate Professor of Pediatrics at the University of Alberta, commencing September 1, 1958. The applicant should have a Ph.D. or M.D. degree or both and should be interested in undertaking and directing research in the field of biochemistry, as applied to pediatrics. Teaching duties will be related to the biochemical aspects of medicine and pediatrics. The salary offered is \$7,500-\$8,500 per annum with consulting privileges. Applications should include a curriculum vitae, a recent photograph, and the names of three referees and should be sent to: The Dean, Faculty of Medicine, University of Alberta, Edmonton, Alberta.

DIRECTOR OF NARCOTIC ADDICTION FOUNDATION: Applications are invited for the post of full-time Director, with teaching appointment within the Faculty of Medicine of The University of British Columbia. **Qualifications:** Certification in Psychiatry by the Royal College of Physicians and Surgeons of Canada or the American Board of Psychiatry, or their equivalent, and preferably with some experience in socio-psychiatric research. **Duties:** To direct the work of a therapeutic and research team of psychologists, social workers and resident personnel; to inspire and guide a program of treatment, rehabilitation and research where, for the first time, there will be developed a socio-medical approach to the treatment of the drug addict. The program will be one of gradual expansion including long term follow-up services in the social and vocational rehabilitation of the individual. Salary open, dependent on the qualifications and experience. Direct replies to the President, Narcotic Addiction Foundation of B.C., 835 West 10th Ave. Vancouver 9, B.C. All communications treated as confidential.

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

Personnel Available

INTERNEIST: (Also two years of Psychiatry) Age 46, with experience in teaching and research (clinical investigation, normal and pathological physiology, experimental pharmacology and preventive medicine). Many publications, at present in group practice in Canada. Desires to return to academic position in research field. Address: A-345.

PHARMACOLOGIST: Ph.D., age 33. Six years industrial research and 2 years teaching experience. Background of research in endocrinology and drugs affecting the hemostatic system. Prefers teaching position in a medical institution allowing adequate time for research. Available June 15, 1958. Address: A-346.

PATHOLOGIST: Foreign trained. U.S. citizen. After working in a general hospital for 7 years, desires research position. Particularly interested in pathology of chronic infectious disease. Publications, including an extensive investigation of influence of tobacco smoke on cardiovascular system. Teaching experience but prefers a full-time research position. Address: A-347.

PEDIATRIC ALLERGIST: Age 36, Dipl. Amer. Board of Pediatrics. Currently fellow in pediatric allergy, seeking full or part-time teaching position in either Illinois or New York, as of July, 1958. Address: A-348.

MEDICAL BACTERIOLOGIST: Ph.D. Excellent background in clinical bacteriology, mycology, and public health bacteriology. Good background in parasitology and virology. Ten years teaching experience. Research published and in progress. Admin. experience in hospitals. Desires position in teaching and/or research and/or clinical microbiology. Address: A-349.

PATHOLOGIST: Age 32, board certified PA, traditionally trained and of semi-academic background, seeks full-time academic position with opportunity for combined teaching, service-type practice in university hospital. Special interests in medical and pediatric pathology. South or southwest preferred. Address: A-350.

INTERNEIST: Physician from Colombia, S.A. Professor of Internal Medicine of the Faculty of Bogota in 1953, assistant professor since 1936. Member of Academy of Medicine of Bogota. Publications: 3 books and many articles in Spanish. Fluent in English. Last five years Cultural Counselor of the Embassy of Colombia in Washington, D.C. Recent courses in cardiology and radiology at Georgetown Univ. Interested in teaching in American university. Address: A-351.

PHARMACOLOGIST-TOXICOLOGIST: Ph.D., age 35. Married, 2 children. Assistant Professor of Pharmacology and Toxicology with approximately 10 years pre-clinical

teaching experience in medical school and with position of Scientist in associated medical research facility. Present research in field of inhalation materials and involves radiolabeled and telemetering techniques. Desires position in non-industrial institution where fundamental research is emphasized and teaching opportunities exist. Particularly interested in autonomic physiology-pharmacology of the respiratory tract. Address: A-352.

PREVENTIVE MEDICINE: British, married with one child. Medical graduate of Edinburgh University, 1952. Served two years National Service as Captain in Royal Army Medical Corps—M.O. in charge Chest Investigation Unit at Army Hospital. Several internships in medicine, surgery and experience in general practice. Post-graduate year, for D.P.H. in Edinburgh University. Presently on staff of Usher Institute of Public Health and Social Medicine, Univ. of Edinburgh, with teaching and research duties. Author and co-author of articles in medical journals. Desires appointment in American university in Public Health (Preventive Medicine). Address: A-353.

PHYSIOLOGIST: Ph.D., 1954. Male, 39, married. Teaching and research experience. Presently assistant professor in dental school. Desires teaching position with research opportunities in medical or dental school. Address: A-354.

PSYCHIATRIST: Age 37, certified, F.A.P.A., at present associate professor in medical school, 9 years experience in teaching and private practice, numerous consulting appointments, desires relocation. Address: A-355.

MICROBIOLOGIST: Ph.D., 32, married male, six years research and three years teaching experience. Research interest in microbial pathogenicity, enterocci and immunology. Desires teaching position allowing time for research. Address: A-356.

BIOSTATISTICIAN: From basic medical sciences department and currently on overseas lectureship award on the application of statistical methods to biological research data, seeks academic post combining teaching and research. Address: A-357.

SURGEON: Certified general, thoracic. Age 37, 12 years training teaching hospitals. Publications; interested research, teaching. Desires academic position. Address: A-358.

PHYSIOLOGIST: Ph.D., M.D., 38, presently professor of physiology in prominent Midwestern medical school. Eleven years experience in teaching medical physiology. Over 50 publications in cardiovascular physiology. Investigative interests: experimental hypertension, cardiac output, regional blood flow, transcapillary transfer rates. Experienced radiologists. Desires position Middle Atlantic area or Pacific Coast. Teaching position preferred; research position acceptable. Address: A-359.

BIOCHEMIST: Ph.D. 1951. Diversified research experience: physicochemistry and structure studies of proteins, kinetics and thermodynamics of enzymatic reactions, steroid and antibiotic isolation. Chromatography, physical techniques and electronics. Publications. Desires career position in either academic or research institute. Address: A-360.

EPIDEMIOLOGIST: Age 31. M.D., Washington Univ., 1951. M.P.H. Yale 1957 (Dr. P.H. Yale 1959). Desires affiliation with department of preventive medicine and responsibilities for cardiovascular disease, epidemiological research. Available September 1958. Address: A-361.

INTERNIST-PsYCHIATRIC ORIENTATION: Certified, 36, desires to participate in practice of comprehensive medicine. Southwest location. Address: A-362.

GASTROENTEROLOGIST: Board eligible. Excellent university hospital training. Three years in GI clinical, teaching and research experience, and all GI procedures. Primary research interest in intestinal absorption. Present faculty appointment. Desires relocating in teaching position with definite research opportunity. Address: A-363.

MICROBIOLOGIST: Age 33, married. M.S. Bacteriology, 1949, Ph.D. Microbiology, 1958. Publications. Seven years teaching experience. Presently, research fellow in Eastern university. Desires teaching position with opportunity for research. Address: A-364.

CLINICAL NEUROLOGIST: British, M.A., M.D. (Cambridge, England), M.R.C.P. (London). Six years training on staff of National Hospital, Queen Square, London. Consultant neurologist on staff of London hospitals with long experience in research. Author of several books and numerous publications. Teaching experience and lecturing at American universities. Desires post in clinical neurology with facilities for teaching and research at professorial or assistant professorial level. Address: A-365.

PSYCHIATRIC SOCIAL WORKER: Female, single. Social Science and Administration Certificate, The London School of Economics and Political Science, England. Group work, B.S.W. University of Toronto, School of Social Work, Canada. Psychiatric Social Work, M.S.W. and Advanced Curriculum, Univ. of Pennsylvania. Experience in administration (United Nations). One year in residence in a State hospital followed by two years of clinical work in a university setting. Familiar with family centered teaching of medical students and residents. Desires faculty appointment. Available from September. Address: A-366.

MICROBIOLOGIST: Completing all requirements in September for the Ph.D. degree in Medical Parasitology, with a minor in Bacteriology and Immunology. Desires position in medical school teaching microbiology with opportunity for research. Address: A-367.

PATHOLOGIST: Age 44, certified C.P. and P.A. Academic background with extensive teaching experience. Particularly interested in medical and pediatric pathology. Organized and presently operating large department in university hospital. Desires to relocate in major city, east or west coast. Interested in combined teaching-service type practice in university or affiliated hospital. Address: A-368.

EPIDEMIOLOGIST: Age 30, M.D., M.P.H., requirements completed for Dr. P.H. Experience in obstetrics, student medicine, health department and chronic disease research. Desires teaching and research position in medical school department of public health and preventive medicine. Research in many fields; publications. Address: A-369.

MICROBIOLOGIST: Ph.D. Training, experience and publications in bacterial physiology (nucleic acid synthesis) and immunology or immuno-chemistry (antibody formation); several years teaching experience of medical students, nurses and technicians. Desires medical school or other academic position in teaching and/or research. Address: A-370.

69th ANNUAL MEETING
OF THE
ASSOCIATION OF
AMERICAN MEDICAL COLLEGES

SHERATON HOTEL

Philadelphia, Pa.

October 13, 14, 15, 1958

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RESERVATIONS

It is important that requests for hotel reservations be made directly to the Sheraton Hotel in Philadelphia and not through Sheraton Hotels in other cities.

TRANSPORTATION

The Pennsylvania Railroad serves Philadelphia with direct service from Chicago, Washington, D.C., and New York. It provides almost hourly schedules from New York and Washington and maintains four trains per day from Chicago.

American Air Lines, TWA and United Air Lines all maintain direct service to Philadelphia from Chicago, New York and Washington, D.C. United Air Lines flies direct service from San Francisco, Seattle and Portland. TWA flies non-stop from Los Angeles to Philadelphia.

REGISTRATION

The Registration Desk will be open as follows:

Saturday	October 11	9:00 A.M.- 3:00 P.M.
Sunday	October 12	9:00 A.M.-10:00 P.M.
Monday	October 13	8:00 A.M.- 7:00 P.M.
Tuesday	October 14	9:00 A.M.- 5:00 P.M.
Wednesday	October 15	9:00 A.M.-12:00 M.

ANNUAL DINNER

Tickets for the Annual Dinner, Monday evening, October 13, should be purchased at the time of registration.

PUBLICATIONS

Useful information for both medical educators and students is published by the Association of American Medical Colleges. These publications may be obtained from the Association headquarters office, 2530 Ridge Avenue, Evanston, Ill.

Booklets

Medical Education Today (\$1.50).

Admission Requirements of American Medical Colleges—1957-58 (\$2.00).

Fellowships, Funds and Prizes Available for Graduate Medical Work in the U.S. and Canada—4th edition, published 1954 (\$1.50).

By-Laws of the Association of American Medical Colleges (Revised 1955).

Minutes of the Proceedings of the Annual Meetings (1947-57 Minutes now available).

Public Understanding and Support of Medical Education.

The Journal of MEDICAL EDUCATION

A monthly journal devoted exclusively to medical education.

Subscription rates: \$7.00 per year, \$12.00 for two years; \$8.00 per year foreign, \$13.00 for two years foreign. Individual copies \$1.00; \$1.25 foreign.

Journal supplements available:

The National Health Service of Great Britain (\$1.00).

Education of Physicians for Industry (\$2.00).

Trends in Medical Practice (\$2.00).

Support of Research by American Cancer Society (\$1.00).

An Analytical Study of North Carolina General Practice 1953-54 (\$2.00) paperbound; \$3.00, clothbound.

Survey of Women Physicians graduating from Medical School 1925-40 (\$1.00).

Suggestions for Supplementing the Medical Curriculum in Time of National Emergency.

Medical Education for Foreign Scholars in the Medical Sciences (\$1.50).

Teaching Institute Reports (\$2.00 paperbound, \$3.00 clothbound).

Report of the Conference on Preventive Medicine in Medical Schools (Report of the 1952 Institute).

The Teaching of Physiology, Biochemistry and Pharmacology (Report of the 1953 Institute).

The Teaching of Pathology, Microbiology, Immunology and Genetics (Report of the 1954 Institute).

The Teaching of Anatomy and Anthropology in Medical Education (Report of the 1955 Teaching Institute).

The Appraisal of Applicants to Medical School (Report of the 1956 Institute).

Medical Audio-Visual Institute Publications

Film Catalog, Fall 1955 and Supplements.

Reprints from the Audiovisual News Section of the Journal of MEDICAL EDUCATION.

Films in Psychiatry, Psychology and Mental Health (available from the Health Education Council, 92 Belmont Drive, Livingston, N.J.).

Films in the Cardiovascular Diseases (Part I available from the American Heart Assn., 44 E. 23rd St., New York 10, N.Y. (\$2.00).

Part II available from the Medical A-V Institute (\$2.00).

Publications of Related Organizations

Hospitals Participating in the Matching Program 1958 (NIMP).

Results of the Matching Program 1958 (NIMP publication).

The Student and the Matching Program 1958 (NIMP publication).

Medical College Admission Test—Bulletin of Information 1957 (Educational Testing Service publication).

Psychiatry in Medical Education—1951 Conference (\$1.00).

The Psychiatrist: His Teaching and Development—1952 Conference (\$2.50).

(The above can be obtained from: American Psychiatric Assn., 1785 Massachusetts Avenue, NW, Washington, D.C.).



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Reference: 1. J.A.M.A. 159:366 (June 4) 1955.

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